SITE ASSESSMENT REPORT
FOR
STEGER INDUSTRIAL PAINTS (22ND & WENTWORTH) SITE
CHICAGO HEIGHTS, COOK COUNTY, ILLINOIS
TDD: S05-9604-003
PAN: 6A0301SI

July 31, 1996

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Emergency and Response Branch
77 West Jackson Boulevard
Chicago, Illinois 60604

Prepared by: Raghu Nagam. Date: 7/31/96
Raghu Nagam, START Project Manager

Reviewed by: Mary J. Ripp Date: 7/31/96
M.J. Ripp, Assistant START Program Manager

Approved by: Date: 7/31/96
Thomas Kouris, START Program Manager

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1. INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) tasked the Superfund Technical Assessment and Response Team (START) contractor, Ecology and Environment, Inc. (E & E), under Technical Direction Document (TDD) S05-9604-003 to assess site conditions and potential threats to human health and the environment at the Steger Industrial Paints site located in Chicago Heights, Cook County, Illinois. The City of Chicago Heights requested the assistance of U.S. EPA in assessing site conditions at this abandoned site. The site assessment was conducted on April 18, 1996.

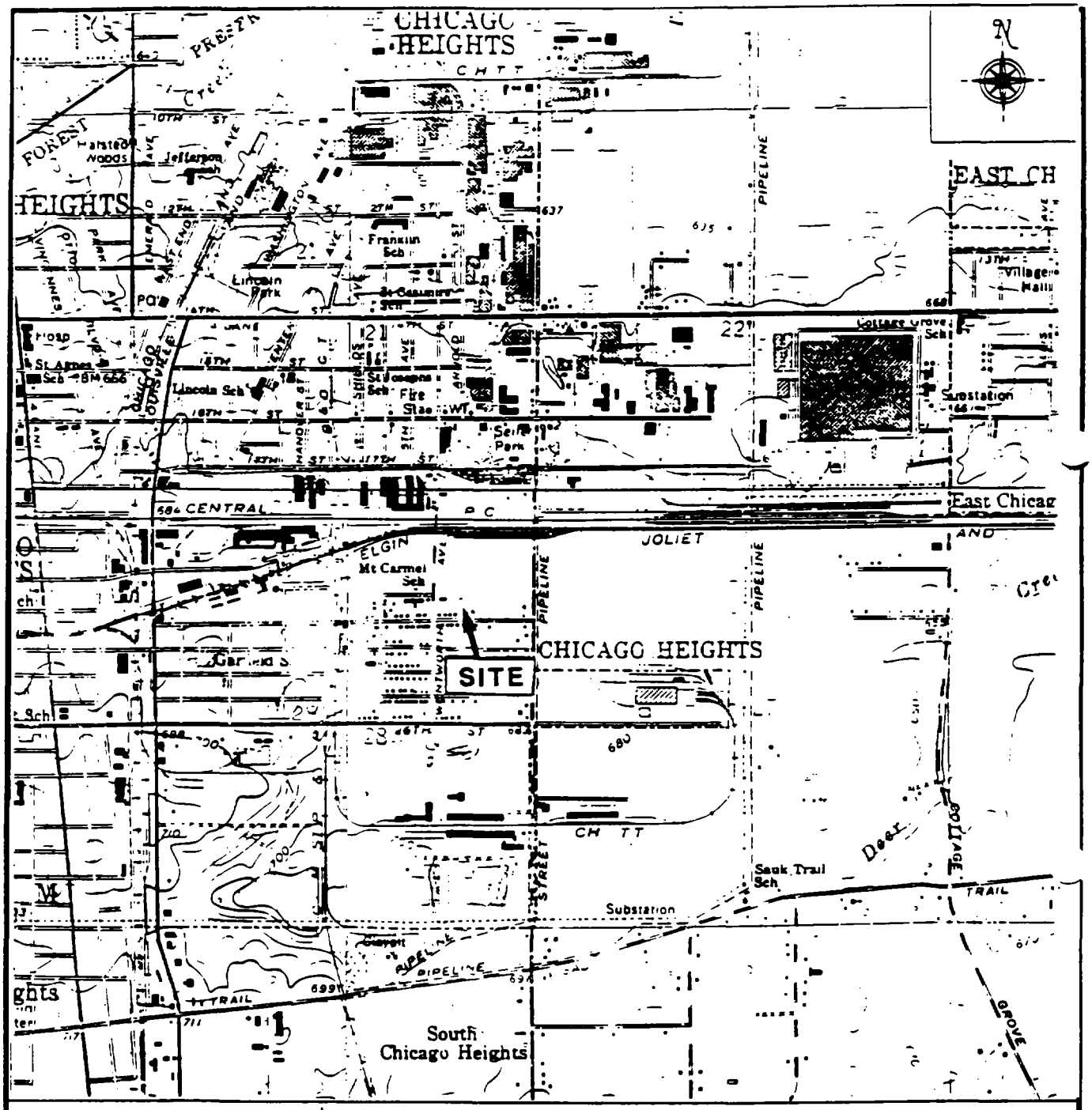
2. BACKGROUND

2.1 SITE DESCRIPTION

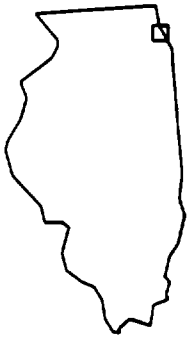
The Steger Industrial Paints site is an inactive and abandoned facility. Very little site history is available. Conversations with the City of Chicago Heights indicate that at one time the site operations involved removing dirt, grease, and oil from automobile parts using degreasing and cleaning chemicals. The site was also used as a truck terminal and repair facility. The site is located at 22nd Street and Wentworth Avenue in Chicago Heights, Cook County, Illinois (latitude 41° 29' 47.5" N, longitude 87° 37' 11.2" W). The site is in a predominantly residential neighborhood and encompasses an approximate area of 0.5 acres (Figure 2-1). The site is bordered on the north by a wooded area, on the east by an open lot, on the south by an alley and residences followed by 22nd Street, and on the west by a warehouse followed by Wentworth Avenue (Figure 2-2). The site consist of a single-storied brick building and a single storied metal building. The two buildings are situated in the form of an "L" shape. Doors to both of these buildings are missing and provide unrestricted access. There are sheets of metal acting as a fence on the south side of the site. Most of this fence is broken and the gate is missing. The brick building contains approximately six drums, two tanks, and several small containers. The metal building has office rooms, two empty aboveground tanks and several bags of potential asbestos insulation material. Automobile tires and debris are scattered throughout both buildings.

2.2 SITE HISTORY

The site was brought to the attention of the Emergency and Enforcement Response Branch (EERB) of U.S. EPA in April 1996 by the City of Chicago Heights. File information provided by the City of Chicago Heights indicated that the facility is inactive, abandoned, and contains tanks and drums with unknown chemicals.



QUADRANGLE LOCATION



ILLINOIS

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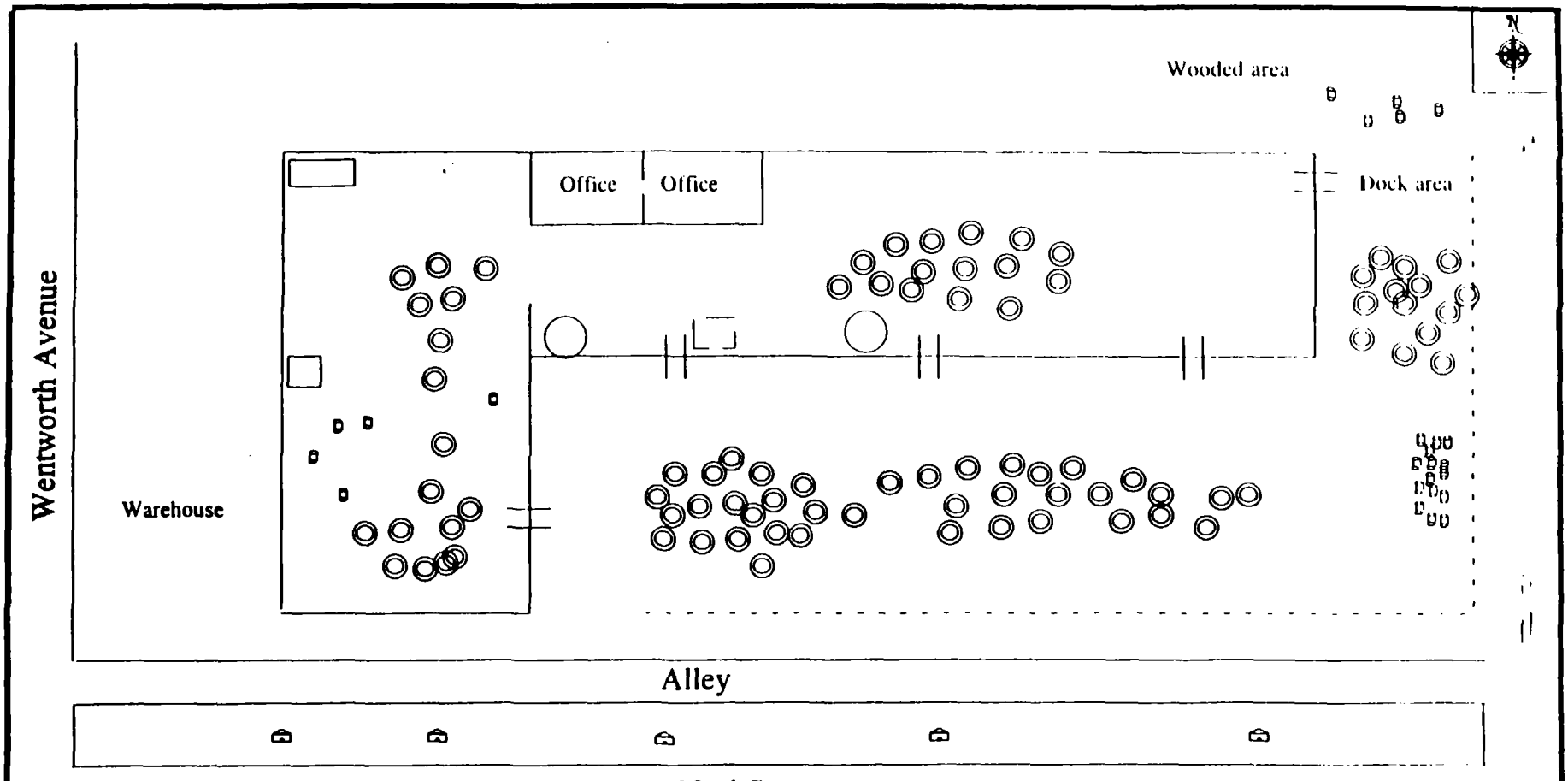
33 North Dearborn, Suite 900, Chicago, Illinois 60602

TITLE	Site Location Map	FIGURE #	2-1
SITE	22nd & Wentworth	SCALE	1 : 24,000
CITY	Chicago Heights STATE Illinois	TDD #	S05-9604-003
SOURCE	U.S.G.S. Calumet City, Harvey, Dyer, and Steger Topographic Quadrangles	DATE	1968, 1963, 1962, and 1953
		REVISED	1980 and 1973



LEGEND

- Tank
- Aboveground tank
- Drum
- Asbestos-containing-material bags
- Broken fence
- Tire
- Entrance
- Residence

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TITLE: Site Features Map	FIGURE #: 2-2
SITE: 22nd & Wentworth	SCALE: Not to scale
CITY: Chicago Heights STATE: Illinois	TDD #: S05-9604-003
SOURCE: Ecology and Environment, Inc.	DATE: 1996

3. SITE ASSESSMENT

START members Raghu Nagam and Tim Calloway mobilized to the site on April 18, 1996, along with U.S. EPA On-Scene Coordinator (OSC) Sam Borries to conduct the site assessment. Joe Doughney from the City of Chicago Heights, and Kim McCloud and Brian Seamen from the United States Coast Guard (USCG) also participated in the site assessment. USCG participated in the role of "on-site training" team. Clyde Weber, owner/operator of the site was also present during the initial part of the site assessment.

After reviewing the site safety plan, a perimeter reconnaissance of the facility was conducted. The brick building has no rooms and consists of one open hall. The northeast portion of the brick building is connected to the metal building. The entire floor of both buildings is paved with concrete. The brick building has no doors on the southeast side. Inside the brick building, debris, tires, and other material were observed on the floor. Three 55-gallon drums, two aboveground tanks, two 30-gallon drums, and several small containers were observed in the brick building. One tank (T-1) was full and contained approximately 500 gallons of a brown liquid and approximately 6 inches of sludge at the bottom. The second tank (T-2) was also full and contained approximately 1,000 gallons of clear brown liquid and unknown amounts of sludge at the bottom. The metal building has three entrances on the south side and one entrance on the east side. Three of these entrances do not have doors. There are two rooms in the metal building, two aboveground tanks, and several bags of potential asbestos-containing insulation material. One of these tanks is empty while the other, which appeared to be a fuel tank, could not be sampled. Inside the metal building, a dead dog was observed in the debris. The east entrance of the metal building leads to the dock area. To the north of the dock, several 20-gallon and 55-gallon drums are located in the wooded area. Most of these drums were empty while a few of them contained material. Some of the 20-gallon drums were labeled "This drum is to be treated as hazardous when empty". Two 55-gallon drums contained white and brown solid and appeared to be a burnt product.

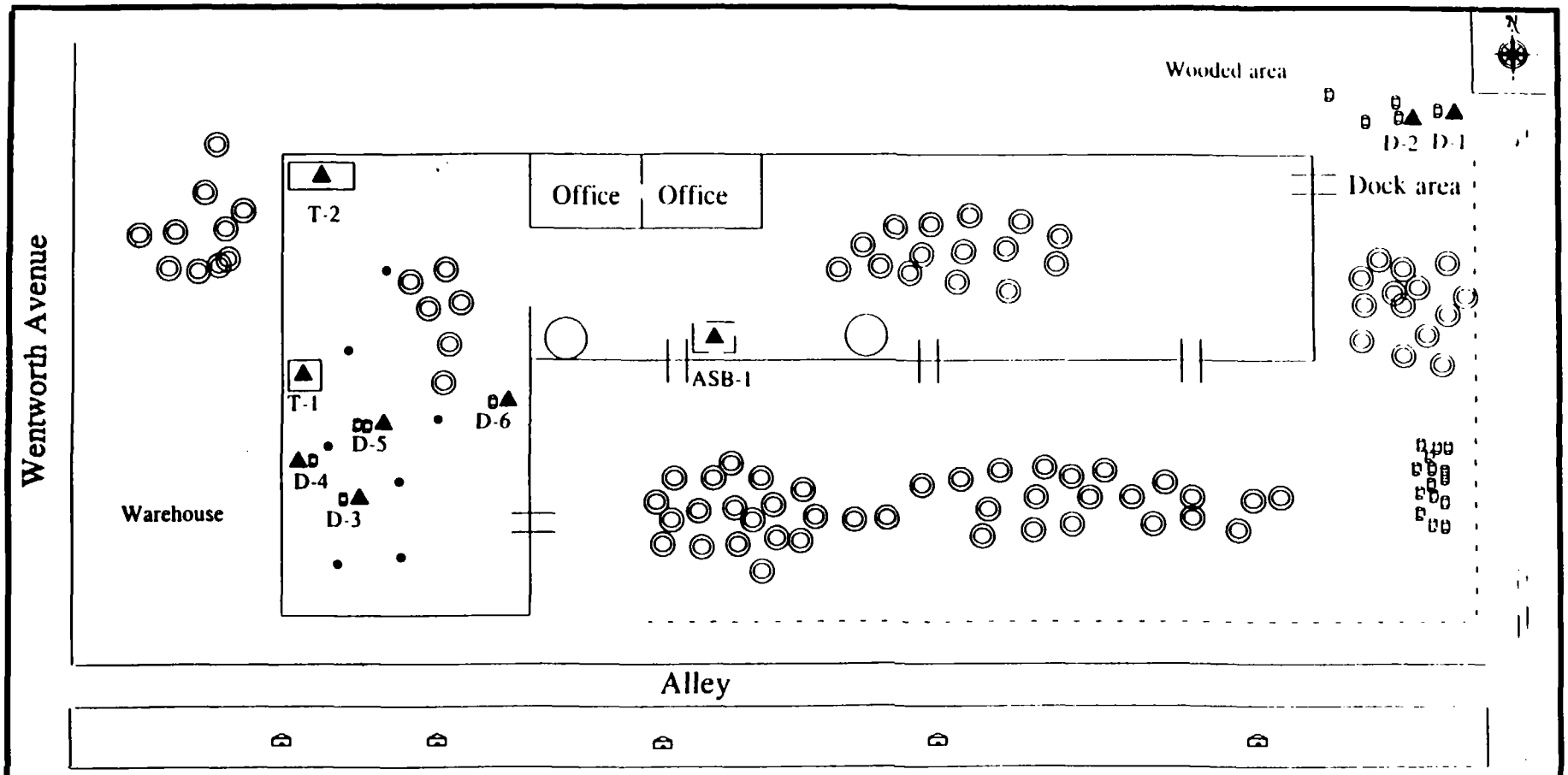
Air monitoring was conducted using an HNU photoionization detector (PID) for organic vapors, an oxygen/explosimeter for explosive atmosphere, and a radiation detector with a pancake probe for detecting radiation. Organic vapor readings monitored throughout the site with the PID were below the background level of 1 part per million (ppm). No readings above the background levels were observed on the oxygen/explosimeter or the radiation meter. Site features were photographed during the site reconnaissance (Appendix A).

Several samples were collected after the completion of the site reconnaissance. A grab sample, D-1, was collected from drum D-1, located outside the dock area. Sample D-1 was a brown solid and had the appearance of a resin. Headspace reading of the sample with the PID detected 0.4 ppm organic vapor concentration. A composite sample, D-2, was collected from two drums located outside the dock area. Sample D-2 is a composite of white and brown solids. Sample D-3 was a brown liquid collected from a blue 55-gallon drum located inside the brick building. Headspace reading of sample D-3 with the PID detected 18 to 20 ppm organic vapor concentration. Drum D-3 contained approximately 15 to 20 gallons of liquid. Sample D-4 was a green liquid collected from a white 55-gallon drum located inside the brick building. No PID readings were detected when this sample was monitored. Drum D-4 contained approximately 35 gallons of liquid. Drum D-4 was labeled "Body pre-rinse", which was manufactured by Sherman Industries, Inc., and indicated that a pre-soak rinse dissolves the band formed by dirt, grease, and oil. A small 1-gallon container labeled "Acrylic enamel reducer - xylene, toluene, acetone and petroleum distillate", manufactured by Kirker Chemical Co., was present near drum D-4. Sample D-5 is a clear liquid collected from two 20-gallon carboy containers located inside the brick building. No PID readings were detected when this sample was monitored. Both the carboys' contained residues of liquid. The test paper used to measure the pH of sample D-5 was oxidized by this liquid. Tank sample T-1 was a brown liquid collected from the smaller tank located inside the brick building. No PID readings were detected when this sample was monitored. Tank sample T- 2 was a clear brown liquid collected from the larger tank located inside the brick building. No PID readings were detected when this sample was monitored. Sample D-6 was a light brown liquid collected from a red 55-gallon drum located inside the brick building. A PID reading on the sample headspace showed 11 to 12 ppm organic vapor concentration. Drum D-6 contained about 10 to 15 gallons of liquid and was labeled "Petroleum compound". Sample FS-1 was a composite of floor sweepings from nine locations on the floor of the brick building. No PID readings were detected when the headspace of this sample was monitored. Sample ASB-1 was a composite of a white solid collected from two abandoned bags located inside the

metal building near the entrance (Figure 3-1).

All on-site activities concluded after the completion of sampling activities. START took the samples to the Bisbee Linseed site in Chicago Heights to perform hazardous waste categorization (hazcat) tests to determine the nature of the samples and the necessary type of further analyses.

Based on hazcat tests, samples were shipped to Heritage Laboratories which is located in Romeoville, Illinois, under analytical TDD S05-9604-803. Two-week verbal and three-week hard copy results were requested with an Office of Solid Waste and Emergency Response (OSWER) quality assurance/quality control (QA/QC) criteria of level II protocol.



LEGEND

- Tank
- Aboveground tank
- Drum
- Asbestos-containing material bags
- FS-1 sample locations
- Sample location
- Tire
- Residence

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TITLE	Sample Location Map	FIGURE #	3-1
SITE	22nd & Wentworth	SCALE	Not to scale
CITY	Chicago Heights STATE Illinois	TDD #	S05-9604-003
SOURCE	Ecology and Environment, Inc.	DATE	1996

4. ANALYTICAL RESULTS

Table 4-1 summarizes the hazcat test results. The analytical results of the samples collected during the START site assessment activities are included in Table 4-2. This table lists only those analytes that were detected in the samples. The liquid samples are nonaqueous; therefore, their concentrations are expressed in either milligrams per kilogram (mg/kg) or in micrograms per kilogram (μg/kg). One sample (D-3) is considered a Resource Conservation and Recovery Act (RCRA) ignitable hazardous waste by the 40 Code of Federal Regulation (CFR) section 261.21 definition (Flashpoint $< 140°F$); two samples (D-4 and T-2) are considered corrosive RCRA hazarardous waste by 40 CFR section 261.22 definition (pH < 2 or > 12.5); and one sample (ASB-1) contained asbestos material. Sample D-2 contained elevated levels of total lead (22,000 mg/kg). Liquid samples D-4 and T-2 contained metal concentrations which were above the toxicity characteristic leachate procedure (TCLP) regulatory concentrations according to 40 CFR section 261.23. Although these are nonaqueous liquid samples, their total concentrations can be compared to TCLP concentrations. Sample D-4 and T-2 contained volatile organic compounds. Semivolatile organic compounds were detected in sample D-6. The floor sweeping sample (FS-1) contained trace amounts of polychlorinated biphenyl (PCB) contamination. The validated QA/QC package is included in Appendix B.

Table 4-1

HAZARDOUS WASTE CATEGORIZATION TEST RESULTS
STEGER INDUSTRIAL PAINTS SITE
CHICAGO HEIGHTS, ILLINOIS
APRIL 18, 1996

Sample Designation	pH (SU)	Water Soluble	Hexane Soluble	Flammable	PID Measurements (ppm)
D-1	12	Yes	No	Negative	0.4
D-2	12	Yes	No	Negative	0.0
D-3	5	No	Yes	Negative	18-20
D-4	1	Yes	No	Negative	0.0
D-5	0	Yes	No	Negative	0.0
D-6	5	No	Yes	Yes	11-12
T-1	11	Yes	No	Negative	0.0
T-2	13	Yes	No	Negative	0.0

Key:
SU = Standard Units.
ppm = Parts per million.
Source = Ecology and Environment, Inc., April 18, 1996.

Table 4-2
SITE ASSESSMENT ANALYTICAL RESULTS
STEGER INDUSTRIAL PAINTS SITE
CHICAGO HEIGHTS, ILLINOIS
APRIL 18, 1996

Parameter	Sample Designation/Matrix									
	D-1/Solid	D-2/Solid	D-3/Liquid	D-4/Liquid	D-5/Liquid	D-6/Liquid	T-1/Liquid	T-2/Liquid	FS-1/Soil	ASB-1/Solid
pH (standard units)	11.93	10.60	NA	1.35	< 1	NA	11.39	12.87	NA	NA
Metals (mg/kg)	NA		NA		NA	NA			NA	NA
Arsenic		46		BDL			BDL	BDL		
Barium		300		0.076			0.24	14		
Cadmium		31		7.2			0.037	BDL		
Chromium		160		79			0.29	15		
Lead		22,000		1.1			1.9	24		
Mercury		BDL		BDL			BDL	BDL		
Selenium		BDL		BDL			BDL	BDL		
Silver		BDL		0.49			BDL	BDL		
Flammability (°F)	NA	NA	122	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA		NA
Arochlor 1016									3.6	
Arochlor 1260									3.7	
Asbestos	NA	NA	NA	NA	NA	NA	NA	NA	NA	55-60% Chrysotile 20-25% Arosite

Table 4-2
SITE ASSESSMENT ANALYTICAL RESULTS
STEGER INDUSTRIAL PAINTS SITE
CHICAGO HEIGHTS, ILLINOIS
APRIL 18, 1996

Parameter	Sample Designation/Matrix									
	D-1/Solid	D-2/Solid	D-3/Liquid	D-4/Liquid	D-5/Liquid	D-6/Liquid	T-1/Liquid	T-2/Liquid	FS-1/Soil	ASB-1/Solid
Volatile organic compounds (µg/kg)		NA		NA	NA		NA	NA	NA	NA
n-Butylbenzene			55,000							
sec-Butylbenzene			76,000			49,000				
Dichloromethane	83									
Ethyl benzene			18,000			52,000				
Isopropyl benzene			39,000			34,000				
4-Isopropyltoluene			46,000			34,000				
Napthalene	570		140,000			470,000				
n-Propylbenzene	110		61,000			59,000				
Toluene						14,000				
1,2,4-Trimethylbenzene	1,900		310,000			300,000				
1,3,5-Trimethylbenzene						82,000				
o-Xylene	330		98,000			99,000				
m/p-Xylene	470		130,000			160,000				
Semivolatile organic compounds (µg/kg)	ND	NA	NA	NA	NA		NA	NA	NA	NA
Dibenzofuran						Est 320,000				
Fluorine						Est 320,000				
2-Methylnapthalene						2,700,000				
Napthalene						2,300,000				
Phenanthrene						840,000				

Key:

µg/kg = Micrograms per kilogram.
mg/kg = Milligrams per kilogram.
NA = Not analyzed.
Est # = Estimated value.
ND = Not detected.
BDL = Below detection level.

Source = Heritage Laboratories, April 1996, Analytical Data Package, TDD: S05-9604-803, Romeoville, Illinois.

5. DISCUSSION OF POTENTIAL THREATS

5.1 THREAT TO HUMAN HEALTH AND THE ENVIRONMENT

Conditions present at the Steger Industrial Paints site that warrant an appropriate removal action as set forth in paragraph (b) (2) of Section 300.415 of the National Oil and Hazardous Substances Contingency Plan (NCP) are:

i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants. The Steger Industrial Paints site is located in a residential area with unrestricted access. Signs of vandalism are prevalent throughout the site area. At least three drums contain hazardous substances above applicable regulatory levels.

ii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release. Samples collected during the site assessment indicate that hazardous materials are present on site. Several drums and one tank found on site are open and contain hazardous material. Some of these drums are in poor condition and pose a potential threat of release. Heavy metals detected in these drums and tank include lead, chromium, and cadmium.

iii) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released. Freezing temperatures during winter months or high temperatures in summer may cause a rupture or ignite some of the containers at the site. The resulting release and mixture of incompatible materials (acidic and caustic) may cause a release of hazardous chemicals. Friable asbestos-containing material found on site may pose an inhalation hazard during summer months.

iv) Threat of fire or explosion. There is a potential fire hazard due to one drum's ignitable contents. Tires which are scattered throughout the site also pose a potential fire threat.

Based on the analytical results and site conditions, mitigative actions are necessary at the

Steger Industrial Paints site to abate potential and imminent threats to human health and the environment posed by hazardous conditions present at the site.

6. PROPOSED REMOVAL ACTIONS

The preferred removal action to mitigate threats associated with the Steger Industrial Paints site consists of off-site treatment and disposal of liquid/sludge and solid wastes, decontamination of on-site vats and floor, and disposal of nonhazardous solid wastes at a landfill. The removal action is anticipated to require the following tasks:

1) Categorization of the contents of drums, tanks, and other containers, including bulking of compatible wastestreams and their disposal off site. Disposal of asbestos-containing material bags located in the metal building is also included.

2) Decontamination of all tanks, dismantling and/or disposal of tanks, as necessary, to prevent future placement of waste material in these containers. Sampling, consolidation, and disposal of underlying soils beneath the tanks, as necessary.

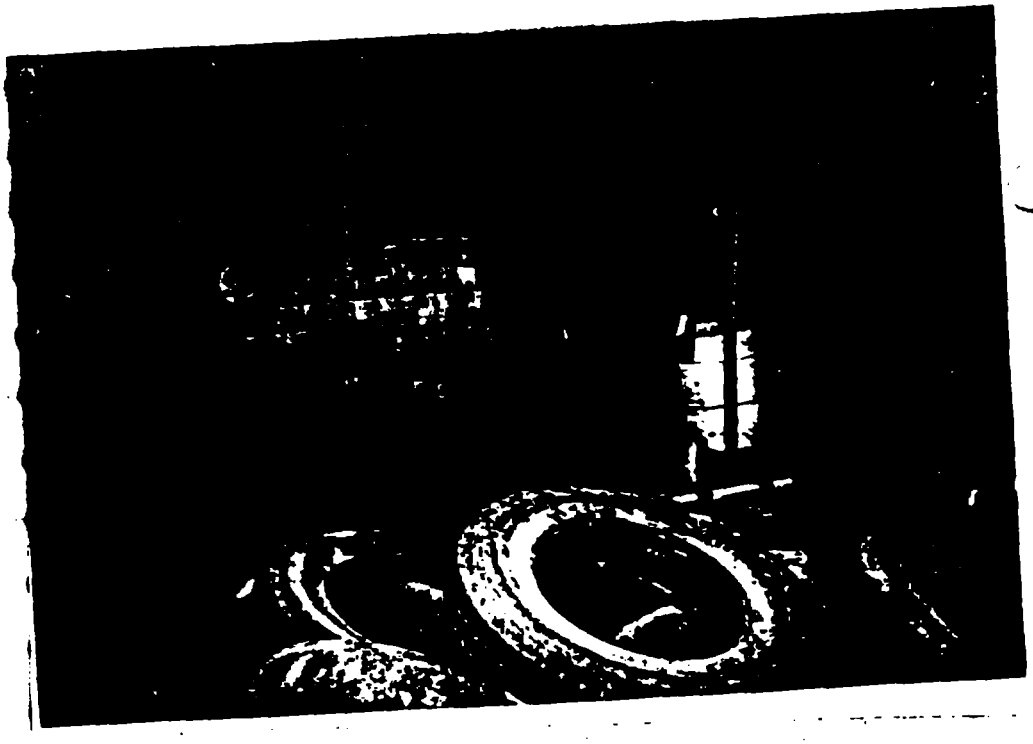
3) Disposal of empty drums and tires.

The response actions described in this report directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the facility which may pose an imminent and substantial endangerment to public health and safety, and to the environment. During the site assessment, all drums that were visible were sampled. The combined volume of the two tanks is estimated to be approximately 1,500 gallons of liquid with some sludge present at the bottom of these tanks. There are approximately 5 to 10 bags of asbestos-containing material, 5 to 10 small containers of unknown material, one empty tank, and one tank which apparently has been used as a diesel storage tank (1,500 gallons).

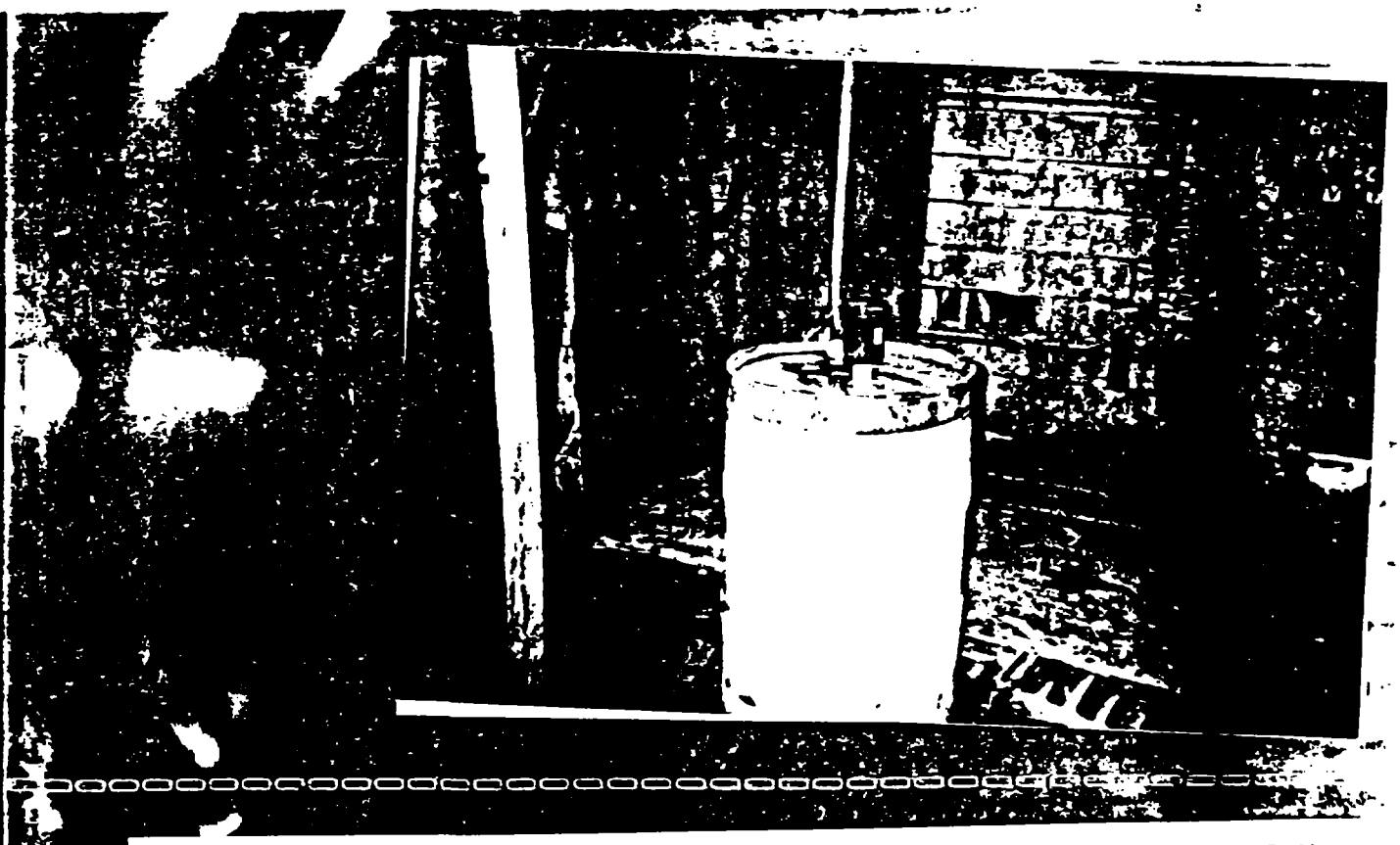
APPENDIX A

PHOTODOCUMENTATION

Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:11:20 Hrs **Dir**:NW **Photographer**:R. Nagam
Description: View of sample D-3 containing light brown colored liquid.



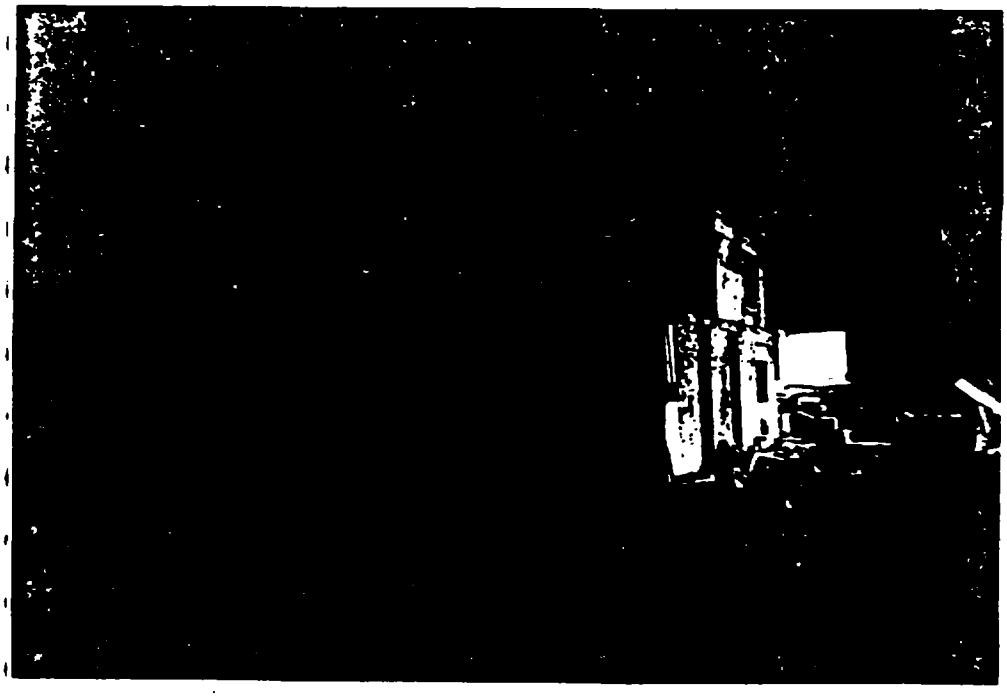
Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:11:21 Hrs **Dir**:NW **Photographer**:R. Nagam
Description: View of drum D-3.



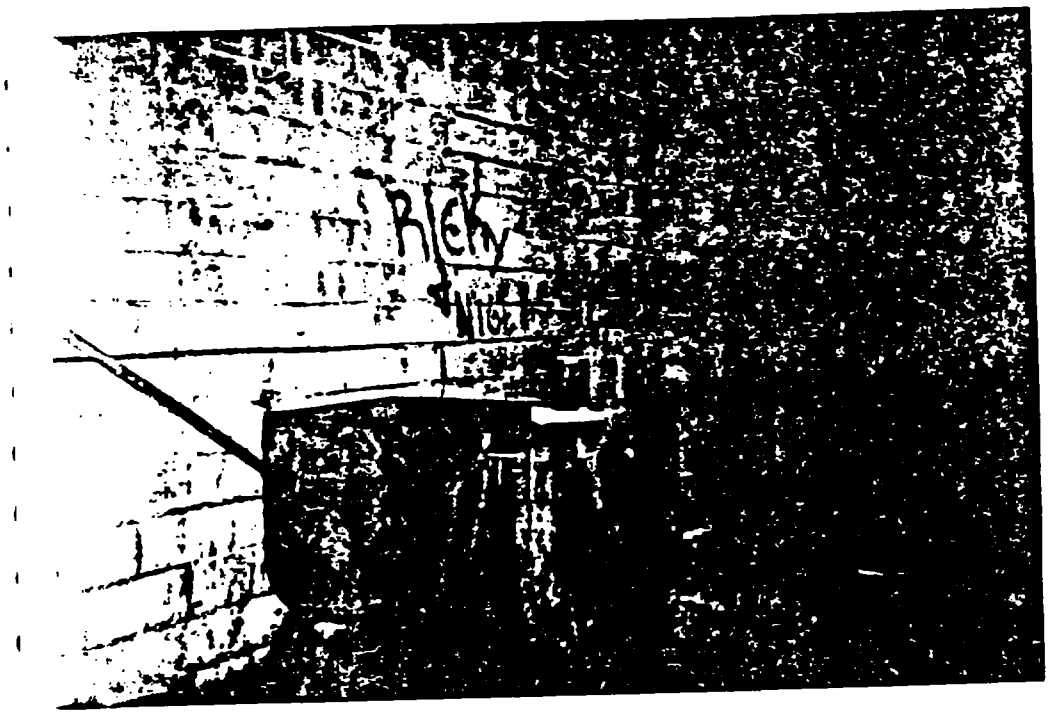
Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/17/96 **Time**:11:25 Hrs **Dir** SW **Photographer**:R. Nagam
Description:View of sample D-4 containing green colored liquid.

Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:11:26 Hrs **Dir**:S **Photographer**:R. Nagam
Description: Perspective of Drum D-4 labelled "Body Prep Rinse".

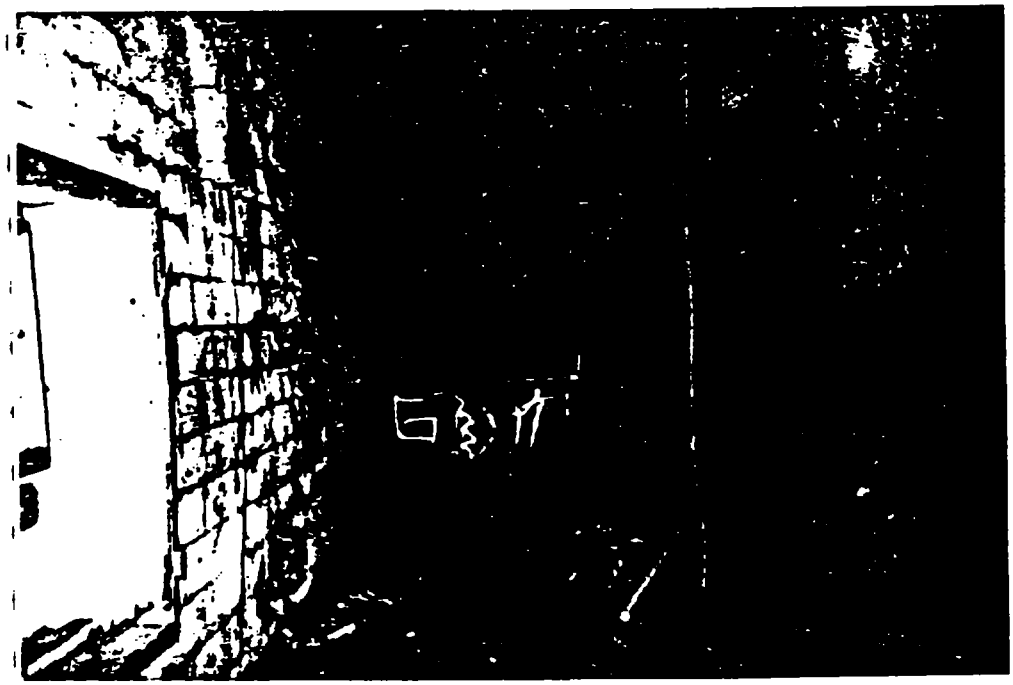
Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04 18 96 Time:11:45 Hrs **Dir**:N **Photographer**:R. Nagam
Description: View of sample T-2 collected from tank T-2.



Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04 18/96 **Time**:12:20 Hrs **Dir**:E **Photographer**:R. Nagam
Description: View of office rooms and unsecured entrance to the building.

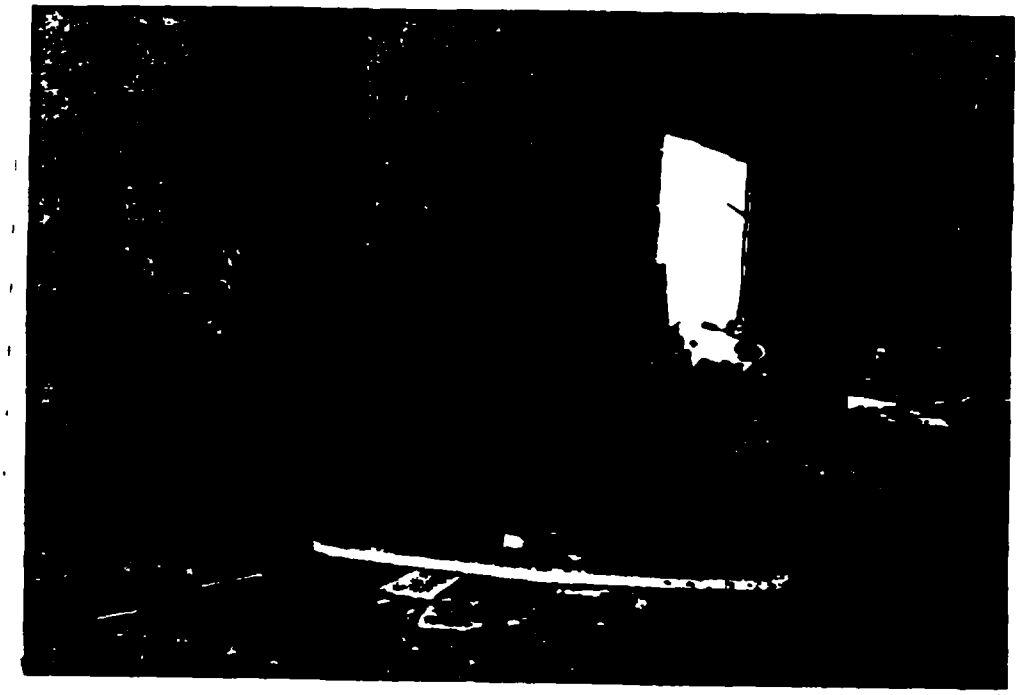


Site:Steger Industrial Paints TDD:S05-9604-003 Date:04 18 96 Time:11:35 Hrs Dir:NW Photographer:R. Nagam
Description:View of brown liquid sample collected from tank T-1. Tank contains about 500 gallons of liquid.

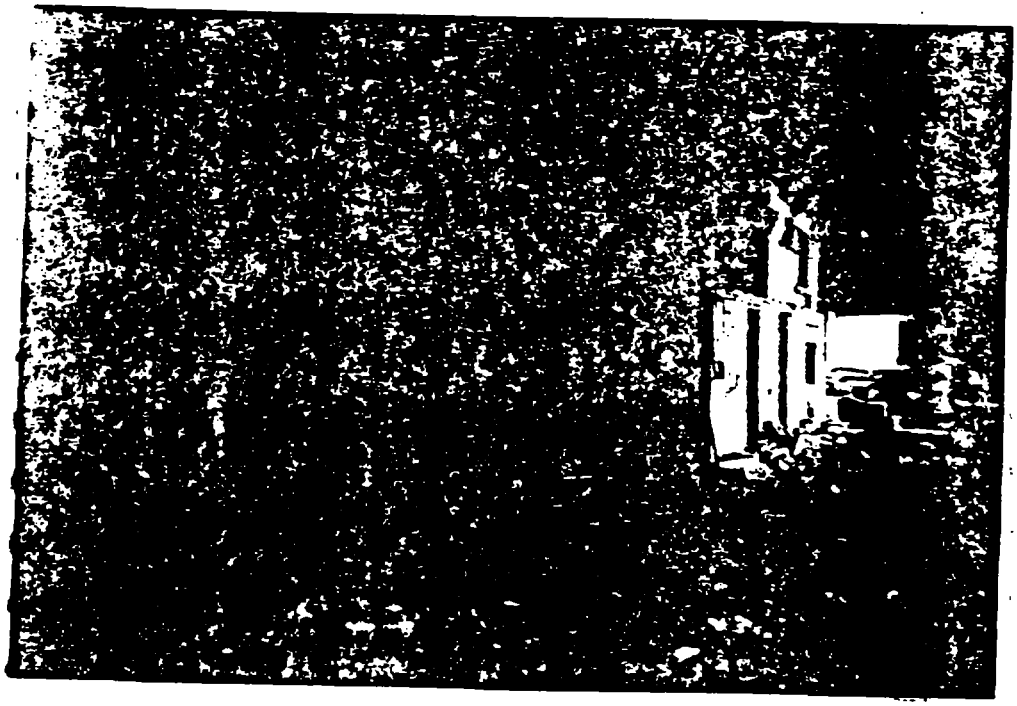


Site:Steger Industrial Paints TDD:S05-9604-003 Date:04/18/96 Time:11:36 Hrs Dir:N Photographer:R. Nagam
Description: View of tank T-1.

Site:Steger Industrial Paints **TDD** S05-9604-003 **Date**:04-18-96 **Time**:11:32 Hrs **Dir**:E **Photographer**:R. Nagam
Description: Photo showing fallen debris inside the site building.



Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04-18-96 **Time**:11:32 Hrs **Dir**:SE **Photographer**:R. Nagam
Description: View of the building floor showing debris, tires, and drums.

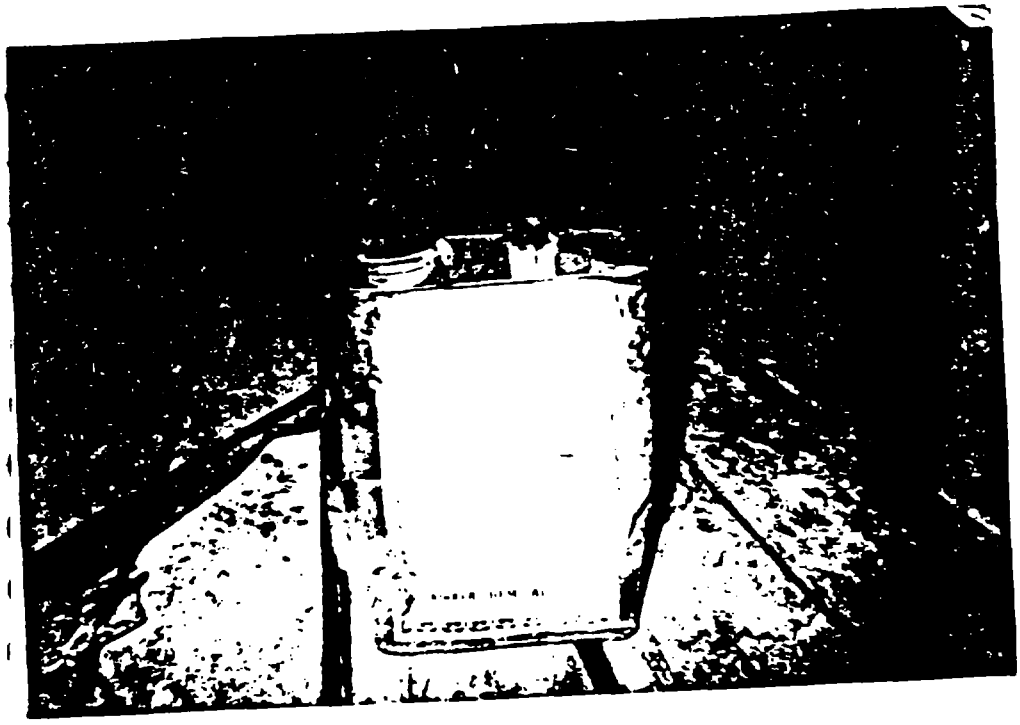


Site Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04 18 96 **Time**:12 21 Hrs **Dir**:E **Photographer**:R. Nagam
Description: View of tank T-2. Sample T-2 was collected from this tank.

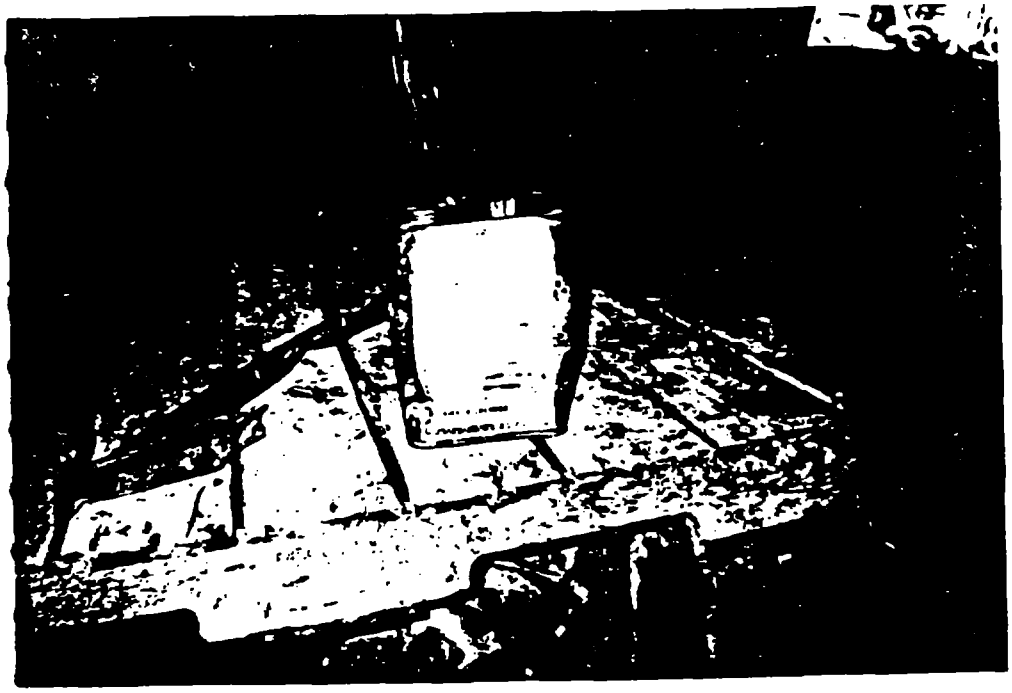
Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:11:30 Hrs **Dir**:E **Photographer**:R. Nagam
Description: View of sample D-5 which was collected from drum D-5.

Site Steger Industrial Paints TDD S 05-9604-003 Date:04 18 96 Time:11:50 Hrs Dir:SE Photographer:R. Nagam
Description: View of drum D-6 that contains flammable liquid.

Site:Steger Industrial Paints TDD:S05-9604-003 Date:04-18-96 Time:11:50 Hrs Dir:SE Photographer:R. Nagam
Description: Perspective of drum D-6.



Site Steger Industrial Paints TDD:S05-9604-003 Date:04/18/96 Time:11:33 Hrs Dir:S Photographer:R. Nagam
Description: Photo of acrylic enamel reducer container found on the site.



Site:Steger Industrial Paints TDD:S05-9604-003 Date:04/18/96 Time:11:33 Hrs Dir:S Photographer:R. Nagam
Description: A closer view of the acrylic enamel reducer container.

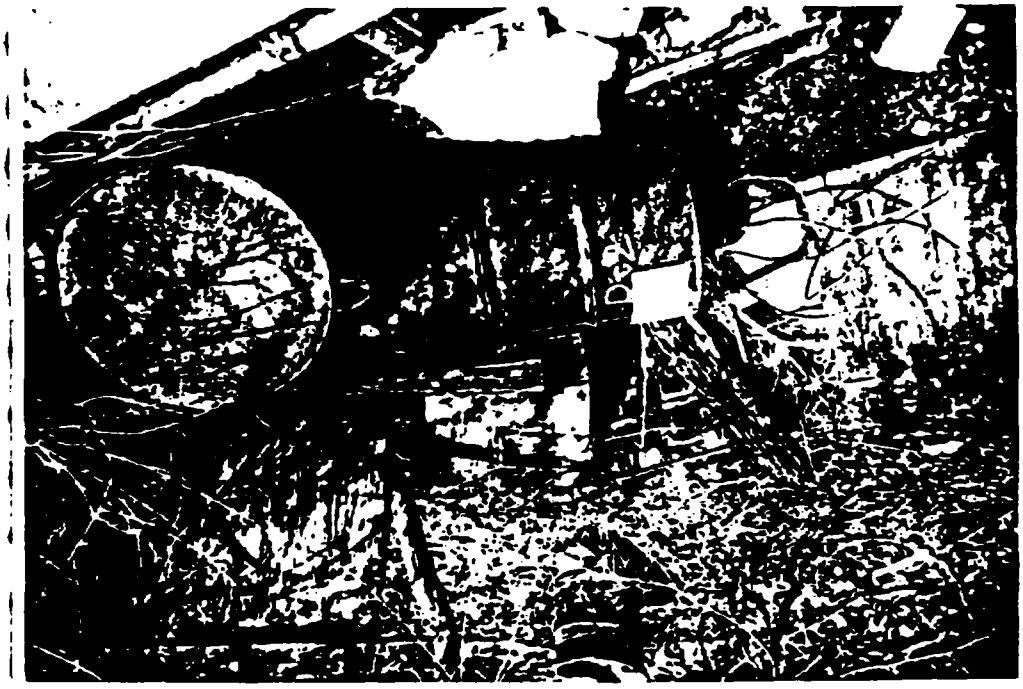
Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04 18 96 **Time**:12:00 Hrs **Dir**:S **Photographer**:R. Nagam
Description: View of fallen debris on the floor. Floor sweeping sample FS-1 was collected from this area.

Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04 18 96 **Time**:12:20 Hrs **Dir**:NE **Photographer**:R. Nagam
Description: View of tires present in front of the site building.

Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:11:52 Hrs **Dir**:SE **Photographer**:R. Nagam
Description: View of the tank in the office area.

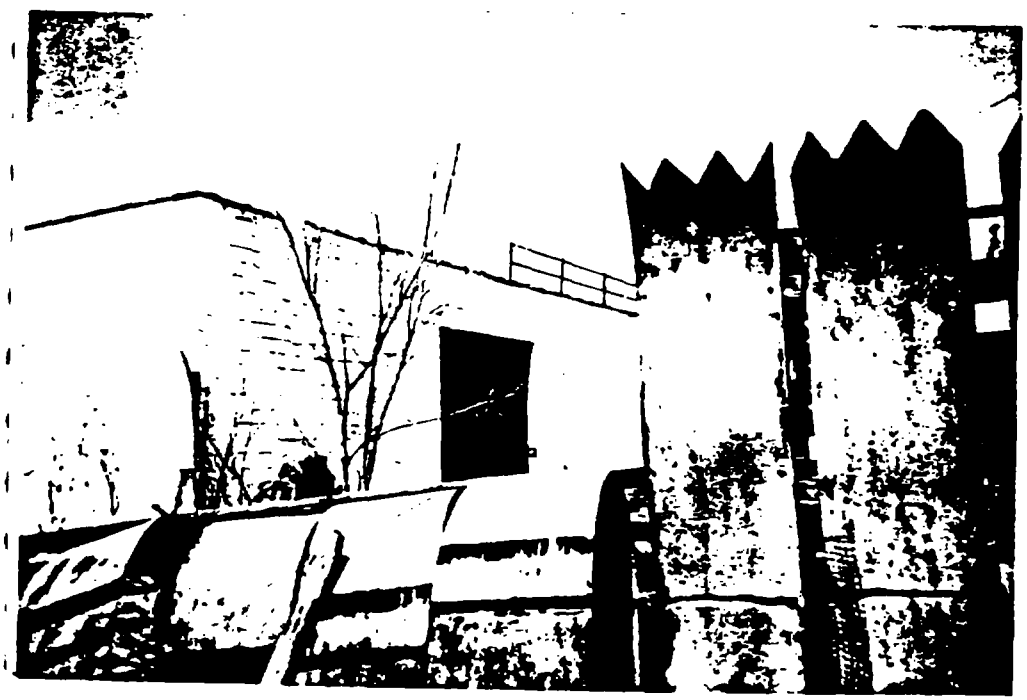
Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:11:52 Hrs **Dir**:SE **Photographer**:R. Nagam
Description: View of another tank which is empty. A children's bicycle was observed in this tank.

Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04 18 96 **Time**:12:25 Hrs **Dir**:S **Photographer**:R. Nagam
Description: View of drum D-2 where sample D-2 was collected.



Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:12:25 Hrs **Dir**:S **Photographer**:R. Nagam
Description: View of drum D-2 and other drums in this area.

Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:12:20 Hrs **Dir**:N **Photographer**:R. Nagam
Description: View of the metal shed building with its unsecured entrance. Asbestos sample ASB-1 was collected from a bag found at this entrance



Site:Steger Industrial Paints **TDD**:S05-9604-003 **Date**:04/18/96 **Time**:12:21 Hrs **Dir**:SW **Photographer**:R. Nagam
Description: View of fallen site fence.

APPENDIX B

ANALYTICAL RESULTS

ecology and environment, inc.
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International Specialists in the Environment

MEMORANDUM

DATE: June 12, 1996

TO: Raghu Nagam, START Project Manager, E & E, Chicago, Illinois

FROM: Karen T. Smith, START Chemist, E & E, Detroit, Michigan

THROUGH: Sandra L. Basham, Assistant START Program Manager, E & E, Detroit, Michigan
David Hendren, START Quality Assurance Officer, E & E, Chicago, Illinois

SUBJECT: Volatile Organic Compound (VOC) Data Quality Assurance Review, 22nd & Wentworth, Chicago Heights, Cook County, Illinois

REFERENCE: Project TDD: S05-9604-003 Analytical TDD: S05-9604-803
Project PAN: 6A0301SIQ0 Analytical PAN: 6AAC01TA

The data quality assurance (QA) review of one waste-solid and two waste-liquid samples, collected from drums at the 22nd & Wentworth site, is complete. Samples were collected on April 18, 1996, by the Superfund Technical Assessment and Response Team (START) contractor, Ecology and Environment, Inc. (E & E). Samples were submitted to Heritage Environmental Services, Inc., Romeoville, Illinois, for analysis of VOCs. The laboratory analysis was performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 (SW-846) Method 8260A for the determination of VOC concentrations.

Sample Identification

START Identification No.	Laboratory Identification No.
D-1	C177348
D-3	C177350
D-6	C177353

Data Qualifications

I. Holding Time: Acceptable

Samples were collected on April 18, 1996, and received by the laboratory on April 19, 1996. Samples were analyzed on April 28 and 29, 1996, for VOCs. All analyses were completed within the 14-day holding time specified in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01.

II. Gas Chromatography/Mass Spectrometry (GC/MS) Tuning: Acceptable

Bromofluorobenzene (BFB) performance standards were analyzed within the 12-hour time limit on the same instrument used to analyze the samples and ion abundance criteria were met.

III. Calibration:

A. Initial Calibration: Acceptable

All response factors (RFs) were greater than zero, and relative response factors (RRFs) for all parameters were at least 0.05 for the initial calibration. The percent relative standard deviations (%RSDs) were within the acceptable range of less than or equal to 30% for all VOCs.

B. Continuing Calibration: Acceptable

All percent differences (%Ds) between the initial calibration and continuing calibration were within the recommended limits of less than or equal to 25%, except for methylene chloride. None of the sample results were positive for methylene chloride; thus, no action was deemed necessary.

IV. Internal Standards: Acceptable

All internal standard (IS) areas were within the specified limits (-50 to +100%) of the associated calibration standards. IS retention times (RTs) were within the plus-or-minus 30-second control limit.

V. Method Blank: Acceptable

A method blank was analyzed on the same instrument and in the proper frequency. All target analytes were below the instrument detection limits.

VI. Compound Identification: Acceptable

All relative retention times (RRTs) were within 0.06 units of the standard RRTs.

VII. Compound Quantitation and Reported Detection Limits: Acceptable

All reported values have been correctly adjusted to reflect all dilutions.

VIII. Overall Assessment of Data for Use: Acceptable

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures; Section 5.0, Volatiles by GC/MS Analysis; and Section 2.7, Quality Assurance Requirements. Based upon the information provided, the data are acceptable for use as reported.

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International Specialists in the Environment

MEMORANDUM

DATE: June 12, 1996

TO: Raghu Nagam, START Project Manager, E & E, Chicago, Illinois

FROM: Karen T. Smith, START Chemist, E & E, Detroit, Michigan

THROUGH: Sandra L. Basham, Assistant START Program Manager, E & E, Detroit, Michigan
David Hendren, START Quality Assurance Officer, E & E, Chicago, Illinois

SUBJECT: Semivolatile Organic Compound (SVOC) Data Quality Assurance Review, 22nd & Wentworth, Chicago Heights, Cook County, Illinois

REFERENCE: Project TDD: S05-9604-003 Analytical TDD: S05-9604-803
Project PAN: 6A0301SIQ0 Analytical PAN: 6AAC01TA

The data quality assurance (QA) review of one waste-solid and one waste-liquid samples, collected from drums at the 22nd & Wentworth site, is complete. Samples were collected on April 18, 1996, by the Superfund Technical Assessment and Response Team (START) contractor, Ecology and Environment, Inc. (E & E). Samples were submitted to Heritage Environmental Services, Inc., Romeoville, Illinois, for analysis of SVOCs. The laboratory analysis was performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 (SW-846) Method 8270B for the determination of SVOC concentrations.

Sample Identification

START Identification No.	Laboratory Identification No.
D-1	C177348
D-6	C177353

Data Qualifications

I. Holding Time: Acceptable

Samples were collected on April 18, 1996, and received by the laboratory on April 19, 1996. Samples were extracted on April 30, 1996, and analyzed on April 30, 1996, for SVOCs. All analyses were completed within the 14 days from collection to extraction and 40 days from extraction to analysis holding times specified in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01.

II. Gas Chromatography/Mass Spectrometry (GC/MS) Tuning: Acceptable

Decafluorotriphenylphosphine (DFTPP) standards were analyzed within the required 12-hour time limit for all sample analyses on the same instrument used to analyze the samples, and the ion abundance criteria were met for each DFTPP standard.

III. Calibration:

A. Initial Calibration: Qualified

All response factors (RFs) were greater than zero, and relative response factors (RRFs) for all parameters were at least 0.05 for the initial calibration, except for toluenediamine. None of the sample results were positive for this compound, in accordance with the OSWER Directive all non-detects have been flagged "R", as rejected. The percent relative standard deviations (%RSDs) were within the acceptable range of less than or equal to 30% for all SVOCs.

B. Continuing Calibration: Acceptable

All percent differences (%Ds) between the initial calibration and continuing calibration were within the recommended limits of less than or equal to 25% for all SVOCs, except for pyridine, 2-picoline, nitrobenzene, 2-nitroaniline, 3-nitroaniline, and 3,3'-dichlorobenzidine. None of the reported sample results were positive for these compounds; thus, no action was taken.

IV. Internal Standards: Acceptable

All internal standard (IS) areas were within the specified limits (-50 to +100%) of the associated calibration standards. IS retention times (RTs) were within the plus-or-minus 30-second control limit.

V. Method Blanks: Acceptable

Method blanks were analyzed on the same instrument and in the proper frequency. All target analytes were below the instrument detection limits.

VI. Compound Identification: Acceptable

All relative retention times (RRTs) were within 0.06 units of the standard RRTs.

VII. Compound Quantitation and Reported Detection Limits: Acceptable

All reported values have been correctly adjusted to reflect all dilutions and dry weight factors.

VIII. Overall Assessment of Data for Use: Acceptable

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures; Section 4.0, BNAs by GC/MS Analysis; and Section 2.7, Quality Assurance Requirements. Based upon the information provided, the data are acceptable for use as reported.

Data Qualifiers and Definitions

R The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

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MEMORANDUM

DATE: June 12, 1996

TO: Raghu Nagan, START Project Manager, E & E, Chicago, Illinois

FROM: Karen T. Smith, START Chemist, E & E, Detroit, Michigan

THROUGH: Sandra L. Basham, Assistant START Program Manager, E & E, Detroit, Michigan
David Hendren, START Quality Assurance Officer, E & E, Chicago, Illinois

SUBJECT: Polychlorinated Biphenyl (PCB) Analysis Data Quality Assurance Review, 22nd & Wentworth, Chicago Heights, Cook County, Illinois

REFERENCE: Project TDD: S05-9604-003 Analytical TDD: S05-9604-803
Project PAN: 6A0301SIQ0 Analytical PAN: 6AAC01TA

The data quality assurance (QA) review of one waste-solid sample, collected from floor sweepings at the 22nd & Wentworth site, is complete. The sample was collected on April 18, 1996, by the Superfund Technical Assessment and Response Team (START) contractor, Ecology and Environment, Inc. (E & E). The sample was submitted to Heritage Environmental Services, Inc., Romeoville, Illinois, for analysis of PCBs. The laboratory analysis was performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 (SW-846) Method 8080 for the determination of PCB concentrations.

Sample Identification

START Identification No.	Laboratory Identification No.
FS-1	C177356

Data Qualifications

I. Holding Time: Acceptable

The sample was collected on April 18, 1996, and received by the laboratory on April 19, 1996. The sample was extracted on April 19, 1996, and analyzed on April 20, 1996. The analysis was completed within the 14 days from collection to extraction and 40 days from extraction to analysis holding time specified in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01.

II. Instrument Performance: Acceptable

All raw chromatograms were reviewed for adequate peak resolution, and all had adequate resolution between peaks of each Aroclor standard. The retention time windows for the sample and check calibration standards were reported and compared to the standard chromatograms for agreement.

III. Calibration:

A. Initial Calibration: Qualified

Calibrations were performed for all Aroclors, except for Aroclors 1221, 1232, 1254, and 1262. The OSWER Directive requires that all reported sample results for these Aroclors should be flagged "J", as estimated. Percent relative standard deviations (%RSDs) for calibrated Aroclors were less than or equal to 10%, except for Aroclors 1016, 1248, and 1262. All positive sample results for these Aroclors have been flagged "J", as estimated.

B. Continuing Calibration: Qualified

Continuing calibration was performed with only Aroclors 1242. Per the OSWER Directive, all associated positive data for Aroclors 1016, 1221, 1232, 1248, 1254, 1260, and 1262 have been flagged "J", as estimated. Percent differences (%Ds) for Aroclor 1242 was less than or equal to 15%.

IV. Method Blanks: Acceptable

Method blanks were analyzed on each day in the proper sequence, and all target compounds were below the instrument detection limits.

V. Compound Identification: Acceptable

The sample chromatogram was compared with the standard chromatograms. Sample identification FS-1 did appear to have the fingerprint patterns for Aroclors 1016 and 1260.

VI. Compound Quantitation and Reported Detection Limits: Acceptable

All reported values have been correctly adjusted to reflect dilutions.

VII. Overall Assessment of Data: Acceptable

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures; Section 7.0, PCBs; and Section 2.7, Quality Assurance Requirements. Based upon the information provided, the data are acceptable for use as reported, with above qualifiers.

Data Qualifiers and Definitions

J The associated numerical value is an estimated quantity because the reported concentrations were less than the contract-required detection limits or quality control criteria were not met.

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M E M O R A N D U M

DATE: June 13, 1996

TO: Raghu Nagam, START Project Manager, E & E, Chicago, Illinois

FROM: Karen T. Smith, START Chemist, E & E, Detroit, Michigan

THROUGH: Sandra L. Basham, Assistant START Program Manager, E & E, Detroit, Michigan
David Hendren, START Quality Assurance Officer, E & E, Chicago, Illinois

SUBJECT: Total Resource Conservation and Recovery Act (RCRA) Metals Data Quality Assurance Review, 22nd & Wentworth, Chicago Heights, Cook County, Illinois

REFERENCE: Project TDD: S05-9604-003 Analytical TDD: S05-9604-803
Project PAN: 6A0301SIQ0 Analytical PAN: 6AAC01TA

The data quality assurance (QA) review of one waste-solid and three waste-liquid samples, collected from two drums and two tanks at the 22nd & Wentworth site, is complete. Samples were collected on April 18, 1996, by the Superfund Technical Assessment and Response Team (START) contractor, Ecology and Environment, Inc. (E & E). Samples were submitted to Heritage Environmental Services, Inc., Romeoville, Illinois, for total RCRA metals analyses. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste-846 (SW-846) Methods 6000-7000 series for the determination of total RCRA metals concentrations.

Sample Identification

START Identification No.	Laboratory Identification No.
D-2	C177349
D-4	C177351
T-1	C177354
T-2	C177355

Data Qualifications

I. Holding Time: Acceptable

Samples were collected on April 18, 1996, and received by the laboratory on April 19, 1996. Samples were digested on April 22 and 24, 1996, and analyzed on April 22 and 29, 1996. All analyses were completed within the holding times specified in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01; 6 months for metals, 14 days for cyanide, and 28 days for mercury.

II. Calibration:

A. Initial Calibration: Acceptable

Initial calibrations were within the recommended limits of 90 to 110% for metals, and 80 to 120% for mercury.

B. Continuing Calibration: Acceptable

A calibration standard was analyzed at the beginning of the analytical run and repeated after every 10 samples for each day of analysis for the metals.

III. Method Blanks: Acceptable

Calibration blanks and preparation blanks were analyzed with the samples. All analyte concentrations were below instrument detection limits.

IV. Inductively Coupled Plasma (ICP) Interference Check Samples: Acceptable

All ICP interference check samples were within 20% of the mean values. An ICP interference check sample was analyzed at both the beginning and the end of the sample run.

V. Performance Evaluation Samples: Not Performed

This evaluation was not required to be performed by the laboratory according to OSWER Directive 9360.4-01.

VI. Additional QC Checks: Not Evaluated

No additional QC checks were performed.

VII. Overall Assessment of Data for Use: Acceptable

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures; Section 3.0, Metallic Inorganic Parameters; and Section 2.7, Quality Assurance Requirements. Based upon the information provided, the data are acceptable for use as reported.

CERTIFICATE OF ANALYSIS

Service Location

HERITAGE ENVIRONMENTAL SERVICES, INC.
COMMERCIAL LABORATORY OPERATIONS
1319 MARQUETTE DRIVE
ROMEOVILLE, IL 60441
(708)378-1600

Received	Project	Lab ID
19-APR-96		C17734
Complete	PO Number	
03-MAY-96	D. HENDRON *	
Printed	Sampled	
04-MAY-96	18-APR-96 11:00	

Report To

D. HENDREN
ECOLOGY & ENVIRONMENT, INC.
111 WEST JACKSON BLVD.
CHICAGO, IL 60604

Bill To

ACCOUNTS PAYABLE
ECOLOGY & ENVIRONMENT, INC.
111 WEST JACKSON BLVD. (12TH FLOOR)
CHICAGO, IL 60604

Sample Description

CLIENT ID: D-1
STATION LOCATION: DRUM D-1
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

PH (S/S/S) SW846-9045B

Analyst: A. SNAPP Analysis Date: 19-APR-96 Test: G624.0.0

Parameter	Result	Det. Limit	Units
PH	11.93	0.1	Std. Uni

GC/MS SONICATION EXTRACTION FOR ORGANICS SW846-3550A

Analyst: T. NAKUM Analysis Date: 30-APR-96 Test: P236.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	5.0		Grams
FINAL VOLUME	1		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: H. QIAN Analysis Date: 30-APR-96 17:22 Instrument: GC/MS SVOA Test: O505.3.0

Prep: GC/MS SONICATION EXTRACTION FOR ORGANICS SW846-3550A P236.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	2000	ug/kg
ACENAPHTHYLENE	BDL	2000	ug/kg
ANTHRACENE	BDL	2000	ug/kg
BENZO(A)ANTHRACENE	BDL	2000	ug/kg
BENZO(A)PYRENE	BDL	2000	ug/kg
BENZO(B)FLUORANTHENE	BDL	2000	ug/kg
BENZO(G,H,I)PERYLENE	BDL	2000	ug/kg
BENZO(K)FLUORANTHENE	BDL	2000	ug/kg
BENZYL ALCOHOL	BDL	2000	ug/kg
(BENZYLBUTYLPHTHALATE) BUTYLBENZYLPHTHALATE	BDL	2000	ug/kg
BIS(2-CHLOROETHOXY)METHANE	BDL	2000	ug/kg
BIS(2-CHLOROETHYL)ETHER	BDL	2000	ug/kg
BIS(2-CHLOROISOPROPYL)ETHER	BDL	2000	ug/kg
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	2000	ug/kg
4-BROMODIPHENYL ETHER	BDL	2000	ug/kg
CARBAZOLE	BDL	2000	ug/kg
4-CHLOROANILINE	BDL	2000	ug/kg
2-CHLORONAPHTHALENE	BDL	2000	ug/kg
4-CHLOROPHENYL-PHENYLETHER	BDL	2000	ug/kg
CHRYSENE	BDL	2000	ug/kg

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177348 D-1

Parameter	Result	Det. Limit	Units
DIBENZ(A,H)ANTHRACENE	BDL	2000	ug/kg
DIBENZOFURAN	BDL	2000	ug/kg
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	2000	ug/kg
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	2000	ug/kg
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	2000	ug/kg
3,3'-DICHLOROBENZIDINE	BDL	4000	ug/kg
DIETHYLPHTHALATE	BDL	2000	ug/kg
DIMETHYLPHTHALATE	BDL	2000	ug/kg
DI-N-BUTYLPHTHALATE	BDL	2000	ug/kg
DINITROBENZENES	BDL	10000	ug/kg
2,4-DINITROTOLUENE	BDL	2000	ug/kg
2,6-DINITROTOLUENE	BDL	2000	ug/kg
DI-N-OCTYLPHTHALATE	BDL	2000	ug/kg
FLUORANTHENE	BDL	2000	ug/kg
FLUORENE	BDL	2000	ug/kg
HEXACHLOROBENZENE	BDL	2000	ug/kg
HEXACHLOROBUTADIENE	BDL	2000	ug/kg
HEXACHLOROCYCLOPENTADIENE	BDL	2000	ug/kg
HEXACHLOROETHANE	BDL	2000	ug/kg
INDENO(1,2,3-CD)PYRENE	BDL	2000	ug/kg
ISOPHORONE	BDL	2000	ug/kg
2-METHYLNAPHTHALENE	BDL	2000	ug/kg
NAPHTHALENE	BDL	2000	ug/kg
2-NITROANILINE (O-NITROANILINE)	BDL	10000	ug/kg
3-NITROANILINE (M-NITROANILINE)	BDL	10000	ug/kg
4-NITROANILINE (P-NITROANILINE)	BDL	10000	ug/kg
NITROBENZENE	BDL	2000	ug/kg
N-NITROSODIPHENYLAMINE	BDL	2000	ug/kg
N-NITROSO-DI-N-PROPYLAMINE	BDL	2000	ug/kg
PHENANTHRENE	BDL	2000	ug/kg
2-PICOLINE	BDL	10000	ug/kg
PYRENE	BDL	2000	ug/kg
PYRIDINE	BDL	10000	ug/kg
TOLUENEDIAMINE	BDL	10000	ug/kg
1,2,4-TRICHLOROBENZENE	BDL	2000	ug/k
BENZOIC ACID	BDL	10000	ug/kg
4-CHLORO-3-METHYLPHENOL	BDL	2000	ug/kg
2-CHLOROPHENOL	BDL	2000	ug/kg
2,4-DICHLOROPHENOL	BDL	2000	ug/kg
2,4-DIMETHYLPHENOL	BDL	2000	ug/kg
4,6-DINITRO-O-CRESOL	BDL	10000	ug/kg
2,4-DINITROPHENOL	BDL	10000	ug/kg
2-METHYLPHENOL (O-CRESOL)	BDL	2000	ug/kg
4-METHYLPHENOL (P-CRESOL)	BDL	2000	ug/kg
2-NITROPHENOL	BDL	2000	ug/kg
4-NITROPHENOL	BDL	10000	ug/kg
PENTACHLOROPHENOL	BDL	10000	ug/kg
PHENOL	BDL	2000	ug/kg
TETRACHLOROPHENOL	BDL	2000	ug/kg
2,4,5-TRICHLOROPHENOL	BDL	2000	ug/kg
2,4,6-TRICHLOROPHENOL	BDL	2000	ug/kg
...			
SURROGATE RECOVERY			

2-FLUOROPHENOL	107		% Rec
PHENOL-D5	106		% Rec
NITROBENZENE-D5	102		% Rec

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177348 D-

Parameter	Result	Det. Limit	Units
2-FLUOROBIPHENYL	85		% Rec
2,4,6-TRIBROMOPHENOL	66		% Rec
TERPHENYL-D14	90		% Rec

1:1 dilution
Detection limit higher due to wet sample matrix.

VOLATILE ORGANICS (CAPILLARY COLUMN) SW846-8260A

Analyst: T. MCDEVITT, JR. Analysis Date: 29-APR-96 19:50 Instrument: GC/MS VOA Test: 0510.6.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	50	ug/kg
BROMOBENZENE	BDL	50	ug/kg
BROMOCHLOROMETHANE	BDL	50	ug/kg
BROMODICHLOROMETHANE	BDL	50	ug/kg
BROMOFORM	BDL	50	ug/kg
BROMOMETHANE	BDL	50	ug/kg
N-BUTYLBENZENE	BDL	50	ug/kg
SEC-BUTYLBENZENE	BDL	50	ug/kg
TERT-BUTYLBENZENE	BDL	50	ug/kg
CARBON TETRACHLORIDE	BDL	50	ug/kg
CHLOROBENZENE	BDL	50	ug/kg
DIBROMOCHLOROMETHANE	BDL	50	ug/kg
CHLOROETHANE	BDL	50	ug/kg
CHLOROFORM	BDL	50	ug/kg
CHLOROMETHANE	BDL	50	ug/kg
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	50	ug/kg
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	50	ug/kg
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	50	ug/kg
1,2-DIBROMOETHANE (EDB)	BDL	50	ug/kg
DIBROMOMETHANE	BDL	50	ug/kg
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	50	ug/kg
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	50	ug/kg
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	50	ug/kg
DICHLORODIFLUOROMETHANE	BDL	50	ug/kg
1,1-DICHLOROETHANE	BDL	50	ug/kg
1,2-DICHLOROETHANE	BDL	50	ug/kg
1,1-DICHLOROETHENE	BDL	50	ug/kg
CIS-1,2-DICHLOROETHENE	BDL	50	ug/kg
TRANS-1,2-DICHLOROETHENE	BDL	50	ug/kg
1,2-DICHLOROPROPANE	BDL	50	ug/kg
1,3-DICHLOROPROPANE	BDL	50	ug/kg
2,2-DICHLOROPROPANE	BDL	50	ug/kg
1,1-DICHLOROPROPENE	BDL	50	ug/kg
ETHYL BENZENE	BDL	50	ug/kg
HEXACHLOROBUTADIENE	BDL	50	ug/kg
ISOPROPYLBENZENE (CUMENE)	BDL	50	ug/kg
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	BDL	50	ug/kg
DICHLOROMETHANE (METHYLENE CHLORIDE)	83	50	ug/kg
NAPHTHALENE	570	50	ug/kg
N-PROPYLBENZENE	110	50	ug/kg
STYRENE	BDL	50	ug/kg
1,1,1,2-TETRACHLOROETHANE	BDL	50	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	50	ug/kg
TETRACHLOROETHENE	BDL	50	ug/kg
TOLUENE	BDL	50	ug/kg
1,2,3-TRICHLOROBENZENE	BDL	50	ug/kg
1,2,4-TRICHLOROBENZENE	BDL	50	ug/kg

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177348-D-

Parameter	Result	Det. Limit	Units
1,1,1-TRICHLOROETHANE	BDL	50	ug/kg
1,1,2-TRICHLOROETHANE	BDL	50	ug/kg
TRICHLOROETHENE	BDL	50	ug/kg
TRICHLOROFLUOROMETHANE	BDL	50	ug/kg
1,2,3-TRICHLOROPROPANE	BDL	50	ug/kg
1,2,4-TRIMETHYLBENZENE	1900	50	ug/kg
1,3,5-TRIMETHYLBENZENE	BDL	50	ug/kg
VINYL CHLORIDE	BDL	50	ug/kg
O-XYLENE	330	50	ug/kg
M/P-XYLENE	470	50	ug/kg
ACETONE (2-PROPANONE)	BDL	200	ug/kg
2-HEXANONE	BDL	100	ug/kg
METHYL ETHYL KETONE	BDL	100	ug/kg
4-METHYL-2-PENTANONE	BDL	100	ug/kg
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	98		% Rec
TOLUENE-D8	96		% Re
4-BROMOFLUOROBENZENE	* 151		% Rec

1:10 dilution
**Sample reanalyzed with no improvement in surrogate recovery.*
Sample reanalyzed with no improvement in internal standard areas.
Unable to analyze sample at lower dilution due to high concentration of non-target compounds.

Sample Comments

* See Note for Parameter
BDL Below Detection Limit

Approved : _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C17734
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	06-MAY-96	18-APR-96 11:05	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: D-2
STATION LOCATION: WHITE AND BROWN SOLID /DRUM-2
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: COMPOSITE

PH (S/S/S) SW846-9045B

Analyst: A. SNAPP Analysis Date: 19-APR-96 Test: G624.0.0

Parameter	Result	Det. Limit	Units
PH	10.60	0.1	Std. Unit

FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A

Analyst: J. KOSTUK Analysis Date: 24-APR-96 Test: P129.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	2.03		Grams
FINAL VOLUME	50		mL

ARSENIC ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M103.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
ARSENIC	46	25	mg/kg

BARIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M104.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
BARIUM	300	2.5	mg/kg

CADMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M108.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CADMIUM	31	1.2	mg/kg

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177349-D-

CHROMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M110.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CHROMIUM	160	2.5	mg/kg

LEAD ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M116.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
LEAD	22000	12	mg/kg

SELENIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M128.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	25	mg/kg

SILVER ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:07 Instrument: ICP Test: M130.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	5.0	mg/kg

MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Test: P131.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	0.19		Grams
FINAL VOLUME	110		mL

MERCURY CVAA SW846-7471A(MOD

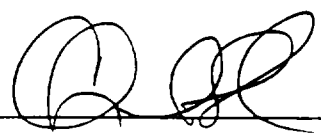
Analyst: T. NOHA Analysis Date: 22-APR-96 Instrument: CVAA Test: M120.2.0

Prep: MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD P131.7.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.3	mg/kg

Sample Comments

BDL Below Detection Limit

Approved : 

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C17735
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	04-MAY-96	18-APR-96 11:20	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: D-3
STATION LOCATION: BLUE DRUM/D-3
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

IGNITABILITY, LIQUID SW846-1010

Analyst: A. SNAPP Analysis Date: 24-APR-96 Instrument: PENSKY MARTENS Test: G509.0.0

Parameter	Result	Det. Limit	Units
IGNITABILITY	122		Degrees F

VOLATILE ORGANICS (CAPILLARY COLUMN) SW846-8260A

Analyst: T. MCDEVITT, JR. Analysis Date: 28-APR-96 21:03 Instrument: GC/MS VOA Test: 0510.6.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	13000	ug/kg
BROMOBENZENE	BDL	13000	ug/kg
BROMOCHLOROMETHANE	BDL	13000	ug/kg
BROMODICHLOROMETHANE	BDL	13000	ug/kg
BROMOFORM	BDL	13000	ug/kg
BROMOMETHANE	BDL	13000	ug/kg
N-BUTYLBENZENE	55000	13000	ug/kg
SEC-BUTYLBENZENE	76000	13000	ug/kg
TERT-BUTYLBENZENE	BDL	13000	ug/kg
CARBON TETRACHLORIDE	BDL	13000	ug/kg
CHLOROBENZENE	BDL	13000	ug/kg
DIBROMOCHLOROMETHANE	BDL	13000	ug/kg
CHLOROETHANE	BDL	13000	ug/kg
CHLOROFORM	BDL	13000	ug/kg
CHLOROMETHANE	BDL	13000	ug/kg
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	13000	ug/kg
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	13000	ug/kg
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	13000	ug/kg
1,2-DIBROMOETHANE (EDB)	BDL	13000	ug/kg
DIBROMOMETHANE	BDL	13000	ug/kg
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	13000	ug/kg
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	13000	ug/kg
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	13000	ug/kg
DICHLORODIFLUOROMETHANE	BDL	13000	ug/kg
1,1-DICHLOROETHANE	BDL	13000	ug/kg
1,2-DICHLOROETHANE	BDL	13000	ug/kg
1,1-DICHLOROETHENE	BDL	13000	ug/kg

Parameter	Result	Det. Limit	Units
CIS-1,2-DICHLOROETHENE	BDL	13000	ug/kg
TRANS-1,2-DICHLOROETHENE	BDL	13000	ug/kg
1,2-DICHLOROPROPANE	BDL	13000	ug/kg
1,3-DICHLOROPROPANE	BDL	13000	ug/kg
2,2-DICHLOROPROPANE	BDL	13000	ug/kg
1,1-DICHLOROPROPENE	BDL	13000	ug/kg
ETHYL BENZENE	18000	13000	ug/kg
HEXACHLOROBUTADIENE	BDL	13000	ug/kg
ISOPROPYLBENZENE (CUMENE)	39000	13000	ug/kg
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	46000	13000	ug/kg
DICHLOROMETHANE (METHYLENE CHLORIDE)	BDL	13000	ug/kg
NAPHTHALENE	140000	13000	ug/kg
N-PROPYLBENZENE	61000	13000	ug/kg
STYRENE	BDL	13000	ug/kg
1,1,1,2-TETRACHLOROETHANE	BDL	13000	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	13000	ug/kg
TETRACHLOROETHENE	BDL	13000	ug/kg
TOLUENE	BDL	13000	ug/kg
1,2,3-TRICHLOROBENZENE	BDL	13000	ug/kg
1,2,4-TRICHLOROBENZENE	BDL	13000	ug/kg
1,1,1-TRICHLOROETHANE	BDL	13000	ug/kg
1,1,2-TRICHLOROETHANE	BDL	13000	ug/kg
TRICHLOROETHENE	BDL	13000	ug/kg
TRICHLOROFLUOROMETHANE	BDL	13000	ug/kg
1,2,3-TRICHLOROPROPANE	BDL	13000	ug/kg
1,2,4-TRIMETHYLBENZENE	310000	13000	ug/kg
1,3,5-TRIMETHYLBENZENE	BDL	13000	ug/kg
VINYL CHLORIDE	BDL	13000	ug/kg
O-XYLENE	98000	13000	ug/kg
M/P-XYLENE	130000	13000	ug/kg
ACETONE (2-PROPANONE)	BDL	50000	ug/kg
2-HEXANONE	BDL	25000	ug/kg
METHYL ETHYL KETONE	BDL	25000	ug/kg
4-METHYL-2-PENTANONE	BDL	25000	ug/kg
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	100		% Rec
TOLUENE-D8	101		% Rec
4-BROMOFLUOROBENZENE	105		% Rec

1:2500 dilution
Dilution necessary due to high concentration of target compounds.
Unable to analyze sample at lower dilution due to high concentration of non-target compounds.

Sample Comments

BDL Below Detection Limit

Approved : _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C17735
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	04-MAY-96	18-APR-96 11:25	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: D-4
STATION LOCATION: WHITE DRUM/D-4
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

PH (S/S/S) SW846-9045B
Analyst: A. SNAPP Analysis Date: 19-APR-96 Test: G624.0.0

Parameter	Result	Det. Limit	Units
PH	1.35	0.1	Std. Unit

FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A
Analyst: J. KOSTUK Analysis Date: 24-APR-96 Test: P129.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	10.01		Grams
FINAL VOLUME	50		mL

ARSENIC ICP SW846-6010A
Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M103.3.0
Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	0.50	mg/kg

BARIUM ICP SW846-6010A
Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M104.3.0
Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
BARIUM	0.076	0.050	mg/kg

CADMIUM ICP SW846-6010A
Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M108.3.0
Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CADMIUM	7.2	0.025	mg/kg

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177351 D-

CHROMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M110.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CHROMIUM	79	0.050	mg/kg

LEAD ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M116.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
LEAD	1.1	0.25	mg/kg

SELENIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M128.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.50	mg/kg

SILVER ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:44 Instrument: ICP Test: M130.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SILVER	0.49	0.10	mg/kg

MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Test: P131.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	0.25		Grams
FINAL VOLUME	110		mL

MERCURY CVAA SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Instrument: CVAA Test: M120.2.0

Prep: MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD P131.7.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.3	mg/kg

Sample Comments

BDL Below Detection Limit

Approved : 

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C177352
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	04-MAY-96	18-APR-96 11:30	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: D-5
STATION LOCATION: BLACK CARBOYLE/ D-5
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

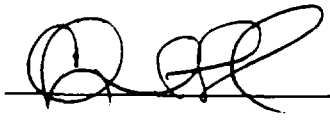
PH (S/S/S) SW846-9045B

Analyst: A. SNAPP Analysis Date: 19-APR-96 Test: G624.0.0

Parameter	Result	Det. Limit	Units
PH	< 1	0.1	Std. Units

Sample Comments

< *Less Than Lower Detection Limit*

Approved : 

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C177353
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	04-MAY-96	18-APR-96 11:50	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: D-6
STATION LOCATION: RED DRUM/ D-6
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

GC/MS WASTE DILUTION FOR ORGANICS SW846-3580A

Analyst: T. NAKUM Analysis Date: 30-APR-96 Test: P237.4.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	0.01038		Grams
FINAL VOLUME	1		mL

SEMI-VOLATILE ORGANICS (BASE/NEUTRAL/ACID FRACTIONS) SW846-8270B

Analyst: H. QIAN Analysis Date: 30-APR-96 23:10 Instrument: GC/MS SVOA Test: 0505.3.0

Prep: GC/MS WASTE DILUTION FOR ORGANICS SW846-3580A P237.4.0

Parameter	Result	Det. Limit	Units
ACENAPHTHENE	BDL	480	mg/kg
ACENAPHTHYLENE	BDL	480	mg/kg
ANTHRACENE	BDL	480	mg/kg
BENZO(A)ANTHRACENE	BDL	480	mg/kg
BENZO(A)PYRENE	BDL	480	mg/kg
BENZO(B)FLUORANTHENE	BDL	480	mg/kg
BENZO(G,H,I)PERYLENE	BDL	480	mg/kg
BENZO(K)FLUORANTHENE	BDL	480	mg/kg
BENZYL ALCOHOL	BDL	480	mg/kg
(BENZYLBUTYLPHTHALATE) BUTYLBENZYLPHTHALATE	BDL	480	mg/kg
BIS(2-CHLOROETHOXY)METHANE	BDL	480	mg/kg
BIS(2-CHLOROETHYL)ETHER	BDL	480	mg/kg
BIS(2-CHLOROISOPROPYL)ETHER	BDL	480	mg/kg
BIS(2-ETHYLHEXYL)PHTHALATE	BDL	480	mg/kg
4-BROMODIPHENYL ETHER	BDL	480	mg/kg
CARBAZOLE	BDL	480	mg/kg
4-CHLOROANILINE	BDL	480	mg/kg
2-CHLORONAPHTHALENE	BDL	480	mg/kg
4-CHLOROPHENYL-PHENYLETHER	BDL	480	mg/kg
CHRYSENE	BDL	480	mg/kg
DIBENZ(A,H)ANTHRACENE	BDL	480	mg/kg
DIBENZOFURAN	EST 320	480	mg/kg
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	480	mg/kg
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	480	mg/kg
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	480	mg/kg

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177353 D-

Parameter	Result	Det. Limit	Units
3,3'-DICHLOROBENZIDINE	BDL	960	mg/kg
DIETHYLPHTHALATE	BDL	480	mg/kg
DIMETHYLPHTHALATE	BDL	480	mg/kg
DI-N-BUTYLPHTHALATE	BDL	480	mg/kg
DINITROBENZENES	BDL	2400	mg/kg
2,4-DINITROTOLUENE	BDL	480	mg/kg
2,6-DINITROTOLUENE	BDL	480	mg/kg
DI-N-OCTYLPHTHALATE	BDL	480	mg/kg
FLUORANTHENE	BDL	480	mg/kg
FLUORENE	EST 320	480	mg/kg
HEXACHLOROBENZENE	BDL	480	mg/kg
HEXACHLOROBUTADIENE	BDL	480	mg/kg
HEXACHLOROCYCLOPENTADIENE	BDL	480	mg/kg
HEXACHLOROETHANE	BDL	480	mg/kg
INDENO(1,2,3-CD)PYRENE	BDL	480	mg/kg
ISOPHORONE	BDL	480	mg/kg
2-METHYLNAPHTHALENE	2700	480	mg/kg
NAPHTHALENE	2300	480	mg/kg
2-NITROANILINE (O-NITROANILINE)	BDL	2400	mg/kg
3-NITROANILINE (M-NITROANILINE)	BDL	2400	mg/kg
4-NITROANILINE (P-NITROANILINE)	BDL	2400	mg/kg
NITROBENZENE	BDL	480	mg/kg
N-NITROSODIPHENYLAMINE	BDL	480	mg/kg
N-NITROSO-DI-N-PROPYLAMINE	BDL	480	mg/kg
PHENANTHRENE	840	480	mg/kg
2-PICOLINE	BDL	2400	mg/kg
PYRENE	BDL	480	mg/kg
PYRIDINE	BDL	2400	mg/kg
TOLUENEDIAMINE	BDL	2400	mg/kg
1,2,4-TRICHLOROBENZENE	BDL	480	mg/kg
BENZOIC ACID	BDL	2400	mg/kg
4-CHLORO-3-METHYLPHENOL	BDL	480	mg/kg
2-CHLOROPHENOL	BDL	480	mg/kg
2,4-DICHLOROPHENOL	BDL	480	mg/kg
2,4-DIMETHYLPHENOL	BDL	480	mg/kg
4,6-DINITRO-O-CRESOL	BDL	2400	mg/kg
2,4-DINITROPHENOL	BDL	2400	mg/kg
2-METHYLPHENOL (O-CRESOL)	BDL	480	mg/kg
4-METHYLPHENOL (P-CRESOL)	BDL	480	mg/kg
2-NITROPHENOL	BDL	480	mg/kg
4-NITROPHENOL	BDL	2400	mg/kg
PENTACHLOROPHENOL	BDL	2400	mg/kg
PHENOL	BDL	480	mg/kg
TETRACHLOROPHENOL	BDL	480	mg/kg
2,4,5-TRICHLOROPHENOL	BDL	480	mg/kg
2,4,6-TRICHLOROPHENOL	BDL	480	mg/kg
...			
SURROGATE RECOVERY			

2-FLUOROPHENOL	*		% Rec
PHENOL-D5	*		% Rec
NITROBENZENE-D5	*		% Rec
2-FLUOROBIPHENYL	*		% Rec
2,4,6-TRIBROMOPHENOL	*		% Rec
TERPHENYL-D14	*		% Rec

1:5 dilution
**Dilution necessary due to matrix effect*

VOLATILE ORGANICS (CAPILLARY COLUMN) SW846-8260A

Analyst: T. MCDEVITT, JR. Analysis Date: 28-APR-96 15:00 Instrument: GC/MS VOA Test: 0510.6.0

Parameter	Result	Det. Limit	Units
BENZENE	BDL	13000	ug/kg
BROMOBENZENE	BDL	13000	ug/kg
BROMOCHLOROMETHANE	BDL	13000	ug/kg
BROMODICHLOROMETHANE	BDL	13000	ug/kg
BROMOFORM	BDL	13000	ug/kg
BROMOMETHANE	BDL	13000	ug/kg
N-BUTYLBENZENE	BDL	13000	ug/kg
SEC-BUTYLBENZENE	49000	13000	ug/kg
TERT-BUTYLBENZENE	BDL	13000	ug/kg
CARBON TETRACHLORIDE	BDL	13000	ug/kg
CHLOROBENZENE	BDL	13000	ug/kg
DIBROMOCHLOROMETHANE	BDL	13000	ug/kg
CHLOROETHANE	BDL	13000	ug/kg
CHLOROFORM	BDL	13000	ug/kg
CHLOROMETHANE	BDL	13000	ug/kg
2-CHLOROTOLUENE (O-CHLOROTOLUENE)	BDL	13000	ug/kg
4-CHLOROTOLUENE (P-CHLOROTOLUENE)	BDL	13000	ug/kg
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	BDL	13000	ug/kg
1,2-DIBROMOETHANE (EDB)	BDL	13000	ug/kg
DIBROMOMETHANE	BDL	13000	ug/kg
1,2-DICHLOROBENZENE (O-DICHLOROBENZENE)	BDL	13000	ug/kg
1,3-DICHLOROBENZENE (M-DICHLOROBENZENE)	BDL	13000	ug/kg
1,4-DICHLOROBENZENE (P-DICHLOROBENZENE)	BDL	13000	ug/kg
DICHLORODIFLUOROMETHANE	BDL	13000	ug/kg
1,1-DICHLOROETHANE	BDL	13000	ug/kg
1,2-DICHLOROETHANE	BDL	13000	ug/kg
1,1-DICHLOROETHENE	BDL	13000	ug/kg
CIS-1,2-DICHLOROETHENE	BDL	13000	ug/kg
TRANS-1,2-DICHLOROETHENE	BDL	13000	ug/kg
1,2-DICHLOROPROPANE	BDL	13000	ug/kg
1,3-DICHLOROPROPANE	BDL	13000	ug/kg
2,2-DICHLOROPROPANE	BDL	13000	ug/kg
1,1-DICHLOROPROPENE	BDL	13000	ug/kg
ETHYL BENZENE	52000	13000	ug/kg
HEXACHLOROBUTADIENE	BDL	13000	ug/kg
ISOPROPYLBENZENE (CUMENE)	34000	13000	ug/kg
4-ISOPROPYLTOLUENE (P-ISOPROPYLTOLUENE)	34000	13000	ug/kg
DICHLOROMETHANE (METHYLENE CHLORIDE)	BDL	13000	ug/kg
NAPHTHALENE	470000	13000	ug/kg
N-PROPYLBENZENE	59000	13000	ug/kg
STYRENE	BDL	13000	ug/kg
1,1,1,2-TETRACHLOROETHANE	BDL	13000	ug/kg
1,1,2,2-TETRACHLOROETHANE	BDL	13000	ug/kg
TETRACHLOROETHENE	BDL	13000	ug/kg
TOLUENE	14000	13000	ug/kg
1,2,3-TRICHLOROBENZENE	BDL	13000	ug/kg
1,2,4-TRICHLOROBENZENE	BDL	13000	ug/kg
1,1,1-TRICHLOROETHANE	BDL	13000	ug/kg
1,1,2-TRICHLOROETHANE	BDL	13000	ug/kg
TRICHLOROETHENE	BDL	13000	ug/kg
TRICHLOROFLUOROMETHANE	BDL	13000	ug/kg

Parameter	Result	Det. Limit	Units
1,2,3-TRICHLOROPROPANE	BDL	13000	ug/kg
1,2,4-TRIMETHYLBENZENE	300000	13000	ug/kg
1,3,5-TRIMETHYLBENZENE	82000	13000	ug/kg
VINYL CHLORIDE	BDL	13000	ug/kg
O-XYLENE	99000	13000	ug/kg
M/P-XYLENE	160000	13000	ug/kg
ACETONE (2-PROPANONE)	BDL	50000	ug/kg
2-HEXANONE	BDL	25000	ug/kg
METHYL ETHYL KETONE	BDL	25000	ug/kg
4-METHYL-2-PENTANONE	BDL	25000	ug/kg
...			
SURROGATE RECOVERY			

DICHLOROETHANE-D4	101		% Rec
TOLUENE-D8	99		% Rec
4-BROMOFLUOROBENZENE	94		% Rec

1:2500 dilution
Dilution necessary due to high concentration of target compounds.
Unable to analyze sample at lower dilution due to high concentration of non-target compounds.

Sample Comments

* *See Note for Parameter*
BDL Below Detection Limit
EST Estimated Value

Approved : _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C17735
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	04-MAY-96	18-APR-96 11:35	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: T-1
STATION LOCATION: TANK T-1
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: COMPOSITE

PH (S/S/S) SW846-9045B

Analyst: A. SNAPP Analysis Date: 19-APR-96 Test: G624.0.0

Parameter	Result	Det. Limit	Units
PH	11.39	0.1	Std. Unit

FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A

Analyst: J. KOSTUK Analysis Date: 24-APR-96 Test: P129.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	10.01		Grams
FINAL VOLUME	50		mL

ARSENIC ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M103.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	0.50	mg/kg

BARIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M104.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
BARIUM	0.24	0.050	mg/kg

CADMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M108.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CADMIUM	0.037	0.025	mg/kg

HERITAGE ENVIRONMENTAL SERVICES, INC. Sample ID: C177354 T-

CHROMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M110.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CHROMIUM	0.29	0.050	mg/kg

LEAD ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M116.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
LEAD	1.9	0.25	mg/kg

SELENIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M128.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	0.50	mg/kg

SILVER ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:50 Instrument: ICP Test: M130.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	0.10	mg/kg

MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Test: P131.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	0.20		Grams
FINAL VOLUME	110		mL

MERCURY CVAA SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Instrument: CVAA Test: M120.2.0

Prep: MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD P131.7.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.3	mg/kg

Sample Comments

BDL Below Detection Limit

Approved : 

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C177355
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	04-MAY-96	18-APR-96 11:45	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: T-2
STATION LOCATION: TANK T-2
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: COMPOSITE

PH (S/S/S) SW846-9045B

Analyst: A. SNAPP Analysis Date: 19-APR-96 Test: G624.0.0

Parameter	Result	Det. Limit	Units
PH	12.87	0.1	Std. Units

FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A

Analyst: J. KOSTUK Analysis Date: 24-APR-96 Test: P129.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	10.02		Grams
FINAL VOLUME	50		mL

ARSENIC ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M103.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
ARSENIC	BDL	5.0	mg/kg

BARIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M104.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
BARIUM	14	0.50	mg/kg

CADMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M108.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CADMIUM	BDL	0.25	mg/kg

CHROMIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M110.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
CHROMIUM	15	0.50	mg/kg

LEAD ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M116.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
LEAD	24	2.5	mg/kg

SELENIUM ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M128.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SELENIUM	BDL	5.0	mg/kg

SILVER ICP SW846-6010A

Analyst: C. HERRO Analysis Date: 13:56 Instrument: ICP Test: M130.3.0

Prep: FAA OR ICP ACID DIGESTION OF S/S/S SAMPLES SW846-3050A P129.7.0

Parameter	Result	Det. Limit	Units
SILVER	BDL	1.0	mg/kg

MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Test: P131.7.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	0.22		Grams
FINAL VOLUME	110		mL

MERCURY CVAA SW846-7471A(MOD

Analyst: T. NOHA Analysis Date: 22-APR-96 Instrument: CVAA Test: M120.2.0

Prep: MERCURY CVAA ACID DIGESTION OF S/S/S SAMPLES SW846-7471A(MOD P131.7.0

Parameter	Result	Det. Limit	Units
MERCURY	BDL	0.3	mg/kg

Sample Comments

BDL Below Detection Limit

Approved : _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C177356
	Complete	PO Number	
	03-MAY-96	D. HENDRON *	
	Printed	Sampled	
	09-MAY-96	18-APR-96 12:00	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: `S-1
STATION LOCATION: FLOOR SWEEPINGS
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: COMPOSITE

PCB OIL EXTRACTION SW846-3580A

Analyst: T. NAKUM Analysis Date: 19-APR-96 Test: P229.1.0

Parameter	Result	Det. Limit	Units
INITIAL WEIGHT OR VOLUME	0.1004		Grams
FINAL VOLUME	10		mL

POLYCHLORINATED BIPHENYLS (PCBS) SW846-8080A

Analyst: S. BUSSEY Analysis Date: 20-APR-96 Instrument: GC/ECD Test: 0301.2.0

Prep: PCB OIL EXTRACTION SW846-3580A P229.1.0

Parameter	Result	Det. Limit	Units
PCB AROCHLOR 1016	3.6	1.0	mg/kg
PCB AROCHLOR 1221	BDL	1.0	mg/kg
PCB AROCHLOR 1232	BDL	1.0	mg/l
PCB AROCHLOR 1242	BDL	1.0	mg/kg
PCB AROCHLOR 1248	BDL	1.0	mg/kg
PCB AROCHLOR 1254	BDL	1.0	mg/kg
PCB AROCHLOR 1260	3.7	1.0	mg/kg
PCB AROCHLOR 1262	BDL	1.0	mg/kg

Sample Comments

BDL Below Detection Limit

Approved : _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C177357
	Complete	PO Number	
	06-MAY-96	D. HENDRON *	
	Printed	Sampled	
	07-MAY-96	18-APR-96 12:15	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: ASB-1
STATION LOCATION: ASBESTOS BAG
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

ASBESTOS (POLARIZED LIGHT MICROSCOPY) NVLAP 18-A01

Analysis Date: 06-MAY-96 Vendor: CARNOW CONIBER Test: G616.0.0

Parameter	Result	Det. Limit	Units
ASBESTOS			
See attached report.			

Sample Comments

This Certificate shall not be reproduced, except in full, without the written approval of the lab.

As indicated, some testing was performed at the following locations:
CARNOW CONIBER
333 W. WACKER DRIVE STE 1400, CHICAGO, IL 60606

Approved : _____

CERTIFICATE OF ANALYSIS

Service Location	Received	Project	Lab ID
HERITAGE ENVIRONMENTAL SERVICES, INC. COMMERCIAL LABORATORY OPERATIONS 1319 MARQUETTE DRIVE ROMEOVILLE, IL 60441 (708)378-1600	19-APR-96		C177357
	Complete	PO Number	
	06-MAY-96	D. HENDRON *	
	Printed	Sampled	
	07-MAY-96	18-APR-96 12:15	

Report To	Bill To
D. HENDREN ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. CHICAGO, IL 60604	ACCOUNTS PAYABLE ECOLOGY & ENVIRONMENT, INC. 111 WEST JACKSON BLVD. (12TH FLOOR) CHICAGO, IL 60604

Sample Description

CLIENT ID: ASB-1
STATION LOCATION: ASBESTOS BAG
ANALYTICAL TDD: S05-9604-803
SAMPLE DESCRIPTION: GRAB

SBESTOS (POLARIZED LIGHT MICROSCOPY) NVLAP 18-A01

Analysis Date: 06-MAY-96 Vendor: CARNOW CONIBER Test: G616.0.0

Parameter	Result	Det. Limit	Units
SBESTOS			

ee attached report.

Sample Comments

s indicated, some testing was performed at the following locations:
ARNOW CONIBER
33 W. WACKER DRIVE STE 1400, CHICAGO, IL 60606

pproved : _____